Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov and A. Rodionov, F. G. Kondev	NDS 112,855 (2011)	31-Oct-2010

Q(β^-)=−2.06×10^3 *3*; S(n)=7189.9 *4*; S(p)=7686.3 *23*; Q(α)=−1282.4 *10* 2012Wa38
Note: Current evaluation has used the following Q record −2059 28 *7186.9 4* 7686.5 *21* −1282.710 2009AuZZ.

^{133}Ba Levels

Cross Reference (XREF) Flags

A ^{133}Ba IT decay
B ^{133}La ε decay (3.912 h)
C ^{124}Sn(^{12}C,3nγ)
D ^{124}Sn(^{13}C,4nγ)
E ^{132}Ba(pol d,p) E=12 MeV

E(level)[†]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0[‡]	1/2$^+$	10.551 y *11*	ABCDE	%ε=100 μ=0.771674 *16* (1987Kn10,2005St24) J$^\pi$: optical spectroscopy (1976Ho13), laser spectroscopy (1978No09), L=0 in (pol d,p). T$_{1/2}$: weighted average of 3840.3 d *89* (2010Sc08), 3854.7 d *28* (2002Un02), 3849.1 d *18* (1997Ma75, the uncertainty is 3σ), 3842 d *18* (1983Wa26), 3885.9 d *43* (1983Ki08), 3848.0 d *33* (1980Ho17, the uncertainty is 3σ), 3850 d *55* (1979HaYC), 3981 d *37* (1972Em01), 3894 d *44* (1968Re04), 3908 d *73* (1961Wy01). Others: 3840.5 d *65* (2004Sc04, superseded by 2010Sc08), 3853.6 d *36* (1992Un01, superseded by 2002Un02), 3828 d *11* (1982HoZJ, superseded by 2002Un02), 4127 d *260* (1973Ll01), 3781 d *15* (1970Wa19, superseded by 1983Wa26), and 2849 d *37* (1968La10). μ: trapped ion spectroscopy. configuration: dominant $\nu(s^{-1}_{1/2})$.
12.327[#] *6*	3/2$^+$	7.0 ns *3*	ABCDE	μ=+0.58 *8* J$^\pi$: 12.327γ M1+E2 to 1/2$^+$ g.s.; L=2 in (pol d,p). T$_{1/2}$: weighted average of 7.3 ns *5* (1981An17), 6.8 ns *4* (1979An06) and 8.1 ns *20* (1965Th05), delayed coincidences; values differ strongly from T$_{1/2}$=18.0 ns *4* (1980Mi13). μ: from x-ray hyperfine shift measurements 1996Mi32 (corrected previous value μ=+0.51 *7* of 1981Gr18). configuration: dominant $\nu(d^{-1}_{3/2})$.
288.252[d] *9*	11/2$^-$	38.93 h *10*	ABCDE	%ε=0.0104 *5*; %IT=99.9896 *5* μ=0.91 *5*; Q=0.89 *7* %ε,%IT: from Iγ(632.5,^{133}Cs)/Iγ(275.9,^{133}Ba)=0.00058 *4*: weighted average of 0.00061 *3* (1971Su04), 0.00049 *5* (1980AnZG) and, 0.00055 *10* (1969Be76). J$^\pi$: laser spectroscopy (1978No09), 275.9γ M4 to 3/2$^+$; L=5 in (pol d,p); μ,Q: from collinear fast beam laser spectroscopy (1983Mu12); μ=−0.91 *4*, Q=1.08 *3* (1979Be25). T$_{1/2}$: weighted average of 38.92 h *9* (2011Gr01), 38.9 h *1* (1960Wi10) and 40.0 h *5* (1941Co03). Other: 38.05 h *4* (1980AnZG) and 42.5 h (1951Hi52). configuration: $\nu(h^{-1}_{11/2})$.
291.188[‡] *9*	5/2$^+$		BCD	J$^\pi$: 291.17γ E2 to 1/2$^+$ g.s.; systematics.
302.395 *11*	3/2$^+$		BC E	J$^\pi$: 302.38γ M1 to 1/2$^+$ g.s.; L=2 in (pol d,p); direct feeding in ^{133}La ε decay (J^π=5/2$^+$).
539.799 *13*	1/2$^+$		B E	XREF: E(500). J$^\pi$: 527.464 γ M1+E2 to 3/2$^+$; not fed directly in ^{133}La ε decay (J^π=5/2$^+$). E(level): probably identical to 500 *5* level with L=0 in (pol d,p).
577.555[#] *13*	7/2$^+$		BCD	J$^\pi$: 565.231γ E2 to 3/2$^+$; direct feeding in ^{133}La ε decay (J^π=5/2$^+$).

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Adopted Levels, Gammas (continued)

^{133}Ba Levels (continued)

E(level)[†]	Jπ	XREF	Comments
630.568 *10*	5/2+	B E	Jπ: 618.241γ M1 to 3/2+, 630.578γ E2 to 1/2+; L=2 in (pol d,p).
676.488 *12*	3/2+,5/2+	B E	XREF: E(674.3). Jπ: L=2 in (pol d,p); 676.47γ M1,E2 to 1/2+, 374.13γ to 3/2+.
791.1 *5*	7/2−	E	Jπ: L=3 in (pol d,p).
858.499 *11*	3/2+	B E	Jπ: 858.496γ M1+E2 to 1/2+; L=2 in (pol d,p).
862.80 *9*	(7/2)+	B	Jπ: 850.43γ M1,E2 to 3/2+; direct population in ^{133}La ε decay (Jπ=5/2+); non observation of γ to 1/2+ g.s. would argue against 3/2+ and 5/2+.
883.39[‡] *4*	9/2+	B D	Jπ: 592.22γ E2 to 5/2+, 305.9γ (M1) to 7/2+.
887.135 *12*	5/2+	B E	XREF: E(886.0). Jπ: 584.734γ M1+E2 to 3/2+; L=2 in (pol d,p).
901.80[e] *8*	13/2−	CD	Jπ: 613.6γ M1+E2 to 11/2−, band assignment.
923.957 *10*	5/2+	B	Jπ: 923.9γ to 1/2+ g.s., 632.765γ M1 to 5/2+, 428.70γ M1 from 7/2+, direct population in ^{133}La ε decay (Jπ=5/2+).
968.97[d] *8*	15/2−	CD	Jπ: 680.7γ E2 to 11/2−; band assignment.
969.4 *5*		E	
1021.584 *23*	3/2+	B	Jπ: 1021.62γ to 1/2+ g.s., 1009.31γ M1 to 3/2+; population in ^{133}La ε decay (Jπ=5/2+).
1066.8 *5*		E	
1111.2 *5*	5/2−,7/2−	E	Jπ: L=3 in (pol d,p).
1112.346 *12*	3/2+,5/2+,7/2+	B	Jπ: 821.13γ M1 to 5/2+; direct population in ^{133}La ε decay (Jπ=5/2+).
1211.792 *12*	3/2+,5/2+	B E	Jπ: 909.27γ M1 to 3/2+, 920.623γ M1 to 5/2+.
1247.7 *5*	1/2+	E	Jπ: L=0 in (pol d,p).
1271.3 *5*	7/2−	E	Jπ: L=3 in (pol d,p).
1283.959 *24*	3/2−	B E	Jπ: 1283.952γ (E1) to 1/2+ g.s.; L=1 in (pol d,p).
1329.319 *18*	5/2+	B E	Jπ: 751.753γ M1 to 7/2+, 1329.33γ to 1/2+ g.s.; 445.3γ (E2) to 9/2+; direct population in ^{133}La ε decay (Jπ=5/2+).
1329.5 *5*	7/2−	E	Jπ: L=3 in (pol d,p).
1352.76 *5*	7/2+	B	Jπ: 1061.56γ M1+E2 to 5/2+ and 428.7γ M1 to 9/2+.
1375.65[#] *7*	11/2+	D	Jπ: 798.0γ E2 to 7/2+; 492.4γ (M1) to 9/2+.
1501.5 *5*		E	
1528.64 *9*	3/2,5/2+	B	Jπ: 1528.62γ to 1/2+; direct population in ^{133}La ε decay (Jπ=5/2+).
1528.99[g] *9*	15/2−	CD	Jπ: 627.3γ M1+E2 γ to 13/2−; band assignment.
1532.40 *8*	3/2,5/2,7/2+	B	Jπ: 1230.06γ to 3/2+, 1241.04γ to 5/2+; direct population in ^{133}La ε decay (Jπ=5/2+).
1563.399 *24*	5/2+	B E	Jπ: 932.98γ M1 to 5/2+, 1563.36γ to 1/2+; L=2 in (pol d,p).
1582.7 *5*	1/2−	E	Jπ: L=1 in (pol d,p).
1620.58 *3*	5/2+	B E	XREF: E(1616.1). Jπ: 1043.02γ M1 to 7/2+, 1620.9γ to 1/2+; direct population in ^{133}La ε decay (Jπ=5/2+).
1633.08[‡] *8*	13/2+	D	Jπ: 257.5γ M1+E2 to 11/2+, 749.6γ E2 to 9/2+.
1689.75 *6*	3/2+,5/2,7/2+	B	Jπ: 1387.41γ to 3/2+, 1111.9γ to 7/2+; direct population in ^{133}La ε decay (Jπ=5/2+).
1706.93 *16*	3/2,5/2+	B E	XREF: E(1704.7). Jπ: 1706.7γ to 1/2+; direct population in ^{133}La ε decay (Jπ=5/2+).
1712.75[e] *8*	17/2−	CD	Jπ: 743.8γ M1+E2 to 15/2−, 810.9γ E2 to 13/2−.
1769.61 *6*	3/2,5/2+	B	Jπ: 1769.6γ to 1/2+; 1478.72γ to 5/2+; direct population in ^{133}La ε decay (Jπ=5/2+).
1770.9 *5*	5/2−	E	Jπ: L=3 in (pol d,p).
1830.22 *3*	3/2,5/2+	B E	XREF: E(1833.7). Jπ: 1830.21γ to 1/2+; direct population in ^{133}La ε decay (Jπ=5/2+).
1859.11[d] *9*	19/2−	CD	Jπ: 146.4γ (M1) to 17/2−, 890.1γ E2 to 15/2−.
1872.4 *5*		E	
1938.3 *5*		E	

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Adopted Levels, Gammas (continued)

^{133}Ba Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$	XREF	Comments
1942.07[a] *9*	19/2$^+$	3.5 ns *15*	CD	Jπ: 229.2γ E1 to 17/2$^-$; band assignment. $T_{1/2}$: authors (1975Gi11) give 2 to 5 ns in ^{124}Sn(^{12}C,3nγ). configuration: Probable a mixture of ν($s^{-1}_{1/2}$,$h^{-2}_{11/2}$) and ν($d^{-1}_{3/2}$,$h^{-2}_{11/2}$).
1968.2 *5*	7/2$^-$		E	Jπ: L=3 in (pol d,p).
2017.0 *5*			E	
2025.1 *5*			E	
2036.19 *11*	17/2$^-$		D	Jπ: 507.2γ and 1067.2γ M1+E2 to 15/2$^-$.
2075.8 *5*	3/2$^-$		E	Jπ: L=1 in (pol d,p).
2101.3 *5*			E	
2113.4 *5*	3/2$^-$		E	Jπ: L=1 in (pol d,p).
2142.2 *5*	(7/2$^-$)		E	Jπ: L=(3) in (pol d,p).
2170.74[g] *9*	19/2$^-$		CD	Jπ: 458.0γ D to 17/2$^-$, stretched 641.9γ E2 (ΔJ=2) to 15/2$^-$.
2171.2 *5*	5/2$^-$		E	Jπ: L=3 in (pol d,p).
2210.97[#] *10*	15/2$^+$		D	Jπ: 577.9γ (M1) to 13/2$^+$, 835.3γ E2 to 11/2$^+$.
2223.0 *5*			E	
2245.3 *5*			E	
2266.9 *5*			E	
2288.1 *5*	7/2$^-$		E	Jπ: L=3 in (pol d,p).
2325.3 *5*			E	
2338.8 *5*			E	
2366.04[a] *11*	23/2$^+$		CD	Jπ: 432.9γ E2 to 19/2$^+$; band assignment.
2381.97[b] *14*	21/2$^+$		CD	Jπ: 439.9γ M1+E2 to 19/2$^+$; band assignment.
2409 *20*			E	
2447.22[‡] *10*	17/2$^+$		D	Jπ: 814.1γ E2 to 13/2$^+$; band assignment.
2495.99 *12*	(21/2$^+$)		CD	Jπ: 554.0γ (M1+E2) to 19/2$^+$, decay pattern.
2509.26[g] *9*	21/2$^-$		CD	Jπ: 650.2γ M1+E2 to 19/2$^-$, 796.5γ E2 to 17/2$^-$.
2526.47 *11*	19/2$^-$		D	Jπ: 997.4γ E2 to 15/2$^-$, 813.8γ M1+E2 to 17/2$^-$.
2671.17[e] *11*	21/2$^-$		D	Jπ: 958.3γ E2 to 17/2$^-$, 812.0γ (M1+E2) to 19/2$^-$.
2830.44[g] *10*	23/2$^-$		CD	Jπ: 659.6γ E2 to 19/2$^-$, 321.3γ (M1) to 21/2$^-$.
2831.10[i] *12*	19/2$^{(+)}$		D	Jπ: 1118.4γ stretched D to 17/2$^-$.
2862.15 *11*	21/2$^+$		D	Jπ: 920.1γ (M1+E2) to 19/2$^+$, 252.9γ D (ΔJ=0) from 21/2$^+$.
2890.38[d] *10*	23/2$^-$		D	Jπ: 1031.1γ E2 to 19/2$^-$, 219.2γ M1+E2 to 21/2$^-$.
2966.3 *4*	21/2$^-$		D	Jπ: 930.0γ E2 to 17/2$^-$; 440.0γ to 19/2$^-$.
2978.2 *5*	19/2		CD	E(level): level fed by the 137.0γ from 21/2$^+$ level at 3115 keV.
3062.94[i] *11*	21/2$^{(+)}$		D	Jπ: 1203.9γ D to 19/2$^-$, 231.9γ D to 19/2$^{(+)}$.
3103.80[b] *12*	25/2$^+$		CD	Jπ: 737.8γ M1+E2 to 23/2$^+$.
3115.16[@] *9*	21/2$^+$		D	Jπ: 667.9γ E2 to 17/2$^+$, and 1173.3γ D to 19/2$^+$; band assignment.
3246.51[&] *10*	23/2$^+$		CD	Jπ: 1304.2γ E2 to 19/2$^+$, 131.4γ (M1) to 21/2$^+$.
3255.92[g] *10*	25/2$^-$		CD	Jπ: 746.6γ E2 to 21/2$^-$, 425.5γ M1+E2 to 23/2$^-$.
3345.94[a] *12*	27/2$^+$		CD	Jπ: 979.2γ E2 to 23/2$^+$; band assignment.
3373.60[i] *12*	23/2$^{(+)}$		D	Jπ: 702.3γ (E1) to 21/2$^-$; 310.8γ to 21/2$^{(+)}$; band assignment.
3433.71[@] *12*	25/2$^+$		D	Jπ: 187.2γ (M1) to 23/2$^+$; band assignment.
3545.92[g] *11*	27/2$^-$		D	Jπ: 715.6γ E2 to 23/2$^-$, 290.0γ (M1) to 25/2$^-$.
3582.69[f] *11*	27/2$^-$		CD	Jπ: 752.3γ E2 to 23/2$^-$, 326.8γ (M1) to 25/2$^-$; band assignment.
3646.41 *13*	(25/2)$^+$		D	Jπ: 1280.3γ M1+E2 to 23/2$^+$.
3688.41[e] *14*	(25/2$^-$)		D	Jπ: 798.0γ to 21/2$^-$, 1018.0γ to 21/2$^-$; band assignment.
3700.60[i] *16*	25/2$^{(+)}$		D	Jπ: 327.0γ (M1) to 23/2$^{(+)}$; band assignment.
3709.90 *16*	(25/2)		D	Jπ: 336.3γ D to 23/2$^{(+)}$.
3710.68[&] *12*	27/2$^+$		D	Jπ: 276.9γ (M1) to 25/2$^+$; band assignment.
3838.92[b] *14*	29/2$^+$		D	Jπ: 493.1γ (M1) to 27/2$^+$, 735.0γ to 25/2$^+$; band assignment.
3967.85 *15*			D	
3987.98[d] *14*	27/2$^-$		D	Jπ: 1097.6γ E2 to 17/2$^-$; band assignment.

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Adopted Levels, Gammas (continued)

^{133}Ba Levels (continued)

E(level)[†]	Jπ	XREF	Comments
4084.6[i] 4	27/2(+)	D	Jπ: 384.0γ (M1) to 25/2(+), 711.0γ to 23/2(+); band assignment.
4145.58 14	29/2+	D	Jπ: 1041.8γ E2 to 25/2+, 799.6γ to 27/2+.
4179.06[@] 14	29/2+	D	Jπ: 468.4γ (M1) to 27/2+; band assignment.
4194.42[g] 13	29/2−	D	Jπ: 938.4γ E2 to 25/2−; band assignment.
4203.20[a] 14	31/2+	D	Jπ: 857.2γ E2 to 27/2+; band assignment.
4223.82 13	(29/2+)	D	Jπ: 513.1γ (M1) to 27/2+.
4242.86[f] 12	31/2−	D	Jπ: 660.1γ E2 to 27/2−; band assignment.
4255.82 13	29/2+	D	Jπ: 545.1γ (M1) to 27/2+, 1152.1γ to 25/2+.
4402.41 15	(27/2)	D	Jπ: 756.0γ to 25/2+; population intensity of this level in ^{124}Sn(^{13}C,4nγ).
4421.91[g] 12	31/2−	D	Jπ: 839.4γ E2 to 27/2−; 227.4γ (M1) to 29/2−; band assignment.
4425.08 13	(27/2+)	D	Jπ: 778.6γ and 1321.3γ stretched D to 25/2+.
4485.34 13	31/2+	D	Jπ: 261.4γ (M1) to 29/2+, 774.7γ and 1139.3γ E2 to 27/2+.
4500.6[i] 7	29/2(+)	D	Jπ: 416.0γ to 27/2(+); band assignment.
4502.44[&] 13	31/2+	D	Jπ: 791.7γ E2 to 27/2+, 323.5γ (M1) to 29/2+; band assignment.
4633.61 18	(29/2)	D	Jπ: 1051.0γ to 27/2−.
4657.81[c] 12	29/2−	D	Jπ: 1075.1γ M1+E2 to 27/2−, 1311.9γ D to 27/2+; band assignment.
4824.51[c] 15	31/2−	D	Jπ: 166.7γ D to 29/2−; band assignment.
4830.57[b] 14	33/2+	D	Jπ: 627.3γ (M1) to 31/2+; band assignment.
5001.45[@] 15	33/2+	D	Jπ: 822.3γ E2 to 29/2+, 499.1γ (M1) to 31/2+; band assignment.
5058.11[c] 18	33/2−	D	Jπ: 233.6γ (M1) to 31/2−; band assignment.
5174.16 15	33/2+	D	Jπ: 918.4γ E2 to 29/2+.
5242.24[a] 15	35/2+	D	Jπ: 411.6γ (M1) to 33/2+, 1039.0γ E2 to 31/2+; band assignment.
5263.4[g] 6	(33/2−)	D	Jπ: 1069.0γ to 29/2−; band assignment.
5350.41[c] 21	35/2−	D	Jπ: 292.3γ (M1) to 33/2−; band assignment.
5391.72[g] 13	35/2−	D	Jπ: 969.8γ and 1148.9γ E2 to 31/2−; band assignment.
5417.80[&] 14	35/2+	D	Jπ: 915.5γ and 932.3γ E2 to 31/2+, 415.9γ (M1) to 33/2+; band assignment.
5430.11[h] 14	33/2−	D	Jπ: 1187.2γ M1+E2 to 31/2−; band assignment.
5465.17 17	(35/2)+	D	Jπ: 634.6γ M1+E2 to 33/2+.
5520.56[f] 15	35/2−	D	Jπ: 1278.0γ E2 to 31/2−; band assignment.
5661.86[h] 14	35/2−	D	Jπ: 1419.0γ E2 to 31/2−; band assignment.
5735.61[c] 23	37/2−	D	Jπ: 385.2γ to 33/2−; band assignment.
5858.16[b] 16	37/2+	D	Jπ: 1027.7γ E2 to 33/2+, 615.8γ (M1) to 35/2+; band assignment.
5936.24[@] 16	37/2+	D	Jπ: 518.3γ (M1) to 35/2+, 935.0γ to 33/2+; band assignment.
5983.71[h] 14	37/2−	D	Jπ: 463.1γ and 592.1γ (M1) to 35/2−; band assignment.
6237.0[c] 3	39/2−	D	Jπ: 501.4γ (M1) to 37/2−; band assignment.
6277.35[a] 17	39/2+	D	Jπ: 419.2γ (M1) to 37/2+, 1035.1γ E2 to 35/2+; band assignment.
6307.92[h] 15	39/2−	D	Jπ: 324.3γ (M1) to 37/2−, 916.2γ E2 to 35/2+; band assignment.
6366.90[g] 14	39/2−	D	Jπ: 383.1γ to 37/2−, 846.4γ E2 to 35/2−; band assignment.
6425.78[&] 16	39/2+	D	Jπ: 489.4γ to 37/2+, 1008.1γ E2 to 35/2+; band assignment.
6546.16 19		D	
6749.51[h] 16	41/2−	D	Jπ: 382.5γ and 441.7γ (M1) to 39/2−; band assignment.
6818.0[c] 3	41/2−	D	Jπ: 581.0γ (M1) to 39/2−, 1081.5γ to 37/2−; band assignment.
6955.08[@] 18	41/2+	D	Jπ: 529.3γ to 39/2+; band assignment.
6980.56[b] 19	(41/2+)	D	Jπ: 703.2γ to 39/2+; band assignment.
7217.71[h] 19	43/2−	D	Jπ: 468.2γ (M1) to 41/2−; band assignment.
7421.0[c] 4	43/2−	D	Jπ: 603.0γ (M1) to 41/2−, 1184.0γ to 39/2−; band assignment.
7431.38[&] 18	(43/2+)	D	Jπ: 476.3γ to 41/2+, 1005.6γ to 39/2+; band assignment.
7585.86[a] 19	43/2+	D	Jπ: 1308.5γ to 39/2+; band assignment.
8052.0[c] 5	45/2−	D	Jπ: 631.0γ (M1) to 43/2−, 1234.0γ to 41/2−; band assignment.

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Adopted Levels, Gammas (continued)

^{133}Ba Levels (continued)

† From a least-squares fit to Eγ's.
‡ Band(A): Based on $1/2^+$ state, α=+1/2; Dominant $\nu(s_{1/2})^{-1}$ configuration.
# Band(B): Based on $3/2^+$ state, α=−1/2; Dominant $\nu(d_{3/2})^{-1}$ configuration.
@ Band(C): Based on $21/2^+$ state, α=+1/2; probable configuration=$\nu(h_{11/2})^{-1}\otimes\pi(h^{-1}_{11/2},g^{-1}_{7/2})$.
& Band(D): Based on $23/2^+$ state, α=−1/2; probable configuration=$\nu(h_{11/2})^{-1}\otimes\pi(h^{-1}_{11/2},g^{-1}_{7/2})$.
a Band(E): Based on $19/2^+$ state, α=−1/2; probable a mixture of $\nu(s^{-1}_{1/2},h^{-2}_{11/2})$ and $\nu(d^{-1}_{3/2},h^{-2}_{11/2})$ configurations.
b Band(F): Based on $21/2^+$ state, α=+1/2; probable a mixture of $\nu(s^{-1}_{1/2},h^{-2}_{11/2})$ and $\nu(d^{-1}_{3/2},h^{-2}_{11/2})$ configurations.
c Band(G): based on $29/2^-$ state.
d Band(H): Based on $11/2^-$ state, α=−1/2; configuration=$\nu(h_{11/2})^{-1}$.
e Band(I): Based on $13/2^-$ state, α=+1/2; configuration=$\nu(h_{11/2})^{-1}$.
f Band(J): based on $27/2^-$ state.
g Band(K): based on $15/2^-$ state.
h Band(L): band L based on $33/2^-$ state.
i Band(M): Based on $19/2^{(+)}$ state; probable configuration=$\nu(h_{11/2})^{-1}\otimes\pi(h^{-1}_{11/2},d^{-1}_{5/2})$.

Adopted Levels, Gammas (continued)

γ(^{133}Ba)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	δ[@]	α[†]	Comments
12.327	3/2$^+$	12.327 *6*	100 *6*	0.0	1/2$^+$	M1+E2	≤0.013	69.5 *19*	B(M1)(W.u.)>0.023; B(E2)(W.u.)<18 α(L)=55.2 *15*; α(M)=11.4 *3*; α(N+..)=2.86 *8* α(N)=2.46 *7*; α(O)=0.373 *9*; α(P)=0.0261 *4* Mult.,δ: L1:L2:L3=100:9.6 *20*:3.1 *15* (1965Th05); α(exp)=65 *3* (1980Mi13); maximum possible E2 admixture of δ^2=1.6×10^{-4}.
288.252	11/2$^-$	275.925 *7*	100.000	12.327	3/2$^+$	M4		4.65	α(K)=3.34 *5*; α(L)=1.018 *15*; α(M)=0.229 *4*; α(N+..)=0.0565 *8* α(N)=0.0491 *7*; α(O)=0.00705 *10*; α(P)=0.000352 *5* B(M4)(W.u.)=1.67 *4* Mult.: other: K:L:M:N=100.0 *11*:31.5 *4*:6.68 *12*:1.78 *7* (1980VyZZ); α(K)exp=3.45 *20* and K/L+=2.55 *10* (1965Th05).
		288 *1*	0.036 *25*	0.0	1/2$^+$	[E5]		4.08 *11*	α(K)=1.53 *4*; α(L)=1.97 *6*; α(M)=0.461 *13*; α(N+..)=0.108 *3* α(N)=0.096 *3*; α(O)=0.0123 *4*; α(P)=0.0001057 *22* B(E5)(W.u.)=10 *7* E_γ,I_γ: from ^{124}Sn(^{12}C,3nγ).
291.188	5/2$^+$	278.835 *17*	100.0 *12*	12.327	3/2$^+$	M1+E2	0.9 *16*	0.0580 *11*	α(K)=0.0485 *21*; α(L)=0.0075 *10*; α(M)=0.00157 *22*; α(N+..)=0.00039 *5* α(N)=0.00034 *5*; α(O)=5.0×10^{-5} *5*; α(P)=3.0×10^{-6} *4* δ: calculated by evaluators with BrIccMixing program from ce(K)=1000 *150*, ce(L)=145 *25*, and ce(M)=35 *6* (1966Ha23).
		291.17 *5*	17.4 *3*	0.0	1/2$^+$	(E2)		0.0497	α(K)=0.0403 *6*; α(L)=0.00743 *11*; α(M)=0.001568 *22*; α(N+..)=0.000382 *6* α(N)=0.000332 *5*; α(O)=4.76×10^{-5} *7*; α(P)=2.28×10^{-6} *4*
302.395	3/2$^+$	290.06 *5*	85.7 *8*	12.327	3/2$^+$	M1+E2	1.0 *12*	0.0516 *15*	α(K)=0.0431 *24*; α(L)=0.0067 *8*; α(M)=0.00141 *19*; α(N+..)=0.00035 *4* α(N)=0.00030 *4*; α(O)=4.4×10^{-5} *4*; α(P)=2.6×10^{-6} *4* δ: Calculated by evaluators with BrIccMixing program from ce(K)=520 *80*, ce(L1)=70 *10* and ce(M)=18 *3* (1966Ha23).
		302.38 *4*	100.0 *11*	0.0	1/2$^+$	M1		0.0475	α(K)=0.0408 *6*; α(L)=0.00534 *8*; α(M)=0.001098 *16*; α(N+..)=0.000276 *4* α(N)=0.000237 *4*; α(O)=3.63×10^{-5} *5*; α(P)=2.66×10^{-6} *4*
539.799	1/2$^+$	527.464 *15*	100	12.327	3/2$^+$	M1,E2		0.0100 *16*	α(K)=0.0085 *14*; α(L)=0.00117 *11*; α(M)=0.000242 *21*; α(N+..)=6.0×10^{-5} *6* α(N)=5.2×10^{-5} *5*; α(O)=7.9×10^{-6} *9*; α(P)=5.4×10^{-7} *11*
577.555	7/2$^+$	286.4 *4*	5.65 *19*	291.188	5/2$^+$	M1+E2		0.0536 *14*	α(K)=0.0447 *24*; α(L)=0.0070 *9*; α(M)=0.00147 *20*; α(N+..)=0.00036 *5* α(N)=0.00031 *4*; α(O)=4.6×10^{-5} *5*; α(P)=2.7×10^{-6} *4*
		565.231 *20*	100 *2*	12.327	3/2$^+$	E2		0.00708 *10*	α(K)=0.00598 *9*; α(L)=0.000872 *13*; α(M)=0.000181 *3*; α(N+..)=4.49×10^{-5} *7* α(N)=3.87×10^{-5} *6*; α(O)=5.78×10^{-6} *8*; α(P)=3.63×10^{-7} *5*

$^{133}_{56}Ba_{77}$-6

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
630.568	5/2+	328.18 *3*	3.62 *21*	302.395	3/2+	M1+E2	0.0362 *23*	α(K)=0.030 *3*; α(L)=0.0046 *3*; α(M)=0.00095 *8*; α(N+..)=0.000236 *15* α(N)=0.000204 *14*; α(O)=3.04×10^{-5} *12*; α(P)=1.9×10^{-6} *3*
		339.35 *4*	5.0 *5*	291.188	5/2+	M1+E2	0.0329 *23*	α(K)=0.028 *3*; α(L)=0.00414 *21*; α(M)=0.00086 *6*; α(N+..)=0.000213 *11* α(N)=0.000184 *10*; α(O)=2.74×10^{-5} *8*; α(P)=1.7×10^{-6} *3*
		618.241 *11*	100 *3*	12.327	3/2+	M1	0.00781 *11*	α(K)=0.00673 *10*; α(L)=0.000859 *12*; α(M)=0.0001764 *25*; α(N+..)=4.44×10^{-5} α(N)=3.81×10^{-5} *6*; α(O)=5.85×10^{-6} *9*; α(P)=4.34×10^{-7} *6*
		630.578 *25*	17.0 *6*	0.0	1/2+	E2	0.00533 *8*	α(K)=0.00452 *7*; α(L)=0.000643 *9*; α(M)=0.0001332 *19*; α(N+..)=3.31×10^{-5} *5* α(N)=2.85×10^{-5} *4*; α(O)=4.27×10^{-6} *6*; α(P)=2.76×10^{-7} *4*
676.488	3/2+,5/2+	136.7 *2*	21 *8*	539.799	1/2+	M1,E2	0.52 *12*	α(K)=0.40 *6*; α(L)=0.10 *5*; α(M)=0.020 *11*; α(N+..)=0.005 *3* α(N)=0.0043 *23*; α(O)=0.0006 *3*; α(P)=2.27×10^{-5} *5*
		374.13 *9*	8.8 *13*	302.395	3/2+			
		385.295 *14*	82 *3*	291.188	5/2+	M1+E2	0.0231 *23*	α(K)=0.0196 *23*; α(L)=0.00283 *4*; α(M)=0.000588 *10*; α(N+..)=0.0001461 *21* α(N)=0.0001260 *18*; α(O)=1.89×10^{-5} *5*; α(P)=1.22×10^{-6} *21*
		664.21 *13*	100 *4*	12.327	3/2+	M1+E2	0.0056 *10*	α(K)=0.0048 *9*; α(L)=0.00064 *9*; α(M)=0.000132 *17*; α(N+..)=3.3×10^{-5} *5* α(N)=2.8×10^{-5} *4*; α(O)=4.3×10^{-6} *6*; α(P)=3.0×10^{-7} *6*
		676.47 *2*	29 *8*	0.0	1/2+	M1,E2	0.0054 *9*	α(K)=0.0046 *8*; α(L)=0.00061 *8*; α(M)=0.000126 *16*; α(N+..)=3.1×10^{-5} *5* α(N)=2.7×10^{-5} *4*; α(O)=4.1×10^{-6} *6*; α(P)=2.9×10^{-7} *6*
858.499	3/2+	227.82 *6*	1.6 *3*	630.568	5/2+	M1+E2	0.106 *6*	α(K)=0.0870 *15*; α(L)=0.015 *4*; α(M)=0.0031 *8*; α(N+..)=0.00077 *18* α(N)=0.00067 *16*; α(O)=9.7×10^{-5} *20*; α(P)=5.2×10^{-6} *5*
		556.03 *22*	30 *6*	302.395	3/2+	M1+E2	0.0088 *14*	α(K)=0.0075 *13*; α(L)=0.00102 *11*; α(M)=0.000210 *20*; α(N+..)=5.2×10^{-5} *6* α(N)=4.5×10^{-5} *5*; α(O)=6.8×10^{-6} *8*; α(P)=4.7×10^{-7} *10*
		567.26 *4*	45 *2*	291.188	5/2+	M1+E2	0.0083 *14*	α(K)=0.0071 *12*; α(L)=0.00096 *10*; α(M)=0.000199 *20*; α(N+..)=5.0×10^{-5} *6* α(N)=4.3×10^{-5} *5*; α(O)=6.5×10^{-6} *8*; α(P)=4.5×10^{-7} *9*
		846.183 *15*	100 *3*	12.327	3/2+	M1+E2	0.0032 *6*	α(K)=0.0027 *5*; α(L)=0.00035 *5*; α(M)=7.2×10^{-5} *11*; α(N+..)=1.8×10^{-5} *3* α(N)=1.56×10^{-5} *23*; α(O)=2.4×10^{-6} *4*; α(P)=1.7×10^{-7} *4*
		858.496 *15*	82 *3*	0.0	1/2+	M1+E2	0.0031 *6*	α(K)=0.0026 *5*; α(L)=0.00034 *5*; α(M)=7.0×10^{-5} *10*; α(N+..)=1.8×10^{-5} *3* α(N)=1.51×10^{-5} *22*; α(O)=2.3×10^{-6} *4*; α(P)=1.7×10^{-7} *4*
862.80	(7/2)+	560.28 *21*	68 *19*	302.395	3/2+			
		571.9 *3*	100 *9*	291.188	5/2+	M1,E2	0.0082 *13*	α(K)=0.0070 *12*; α(L)=0.00094 *10*; α(M)=0.000195 *20*; α(N+..)=4.9×10^{-5} *6* α(N)=4.2×10^{-5} *5*; α(O)=6.3×10^{-6} *8*; α(P)=4.4×10^{-7} *9*

$^{133}_{56}Ba_{77}$-7

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
862.80	(7/2)$^+$	850.43 *10*	90 *10*	12.327	3/2$^+$	E2	0.0031 *6*	α(K)=0.0027 *5*; α(L)=0.00035 *5*; α(M)=7.1×10^{-5} *10*; α(N+..)=1.8×10^{-5} *3* α(N)=1.54×10^{-5} *22*; α(O)=2.4×10^{-6} *4*; α(P)=1.7×10^{-7} *4*
883.39	9/2$^+$	305.9[#] *1*	11[#] *3*	577.555	7/2$^+$	(M1)	0.0461	α(K)=0.0396 *6*; α(L)=0.00517 *8*; α(M)=0.001065 *15*; α(N+..)=0.000268 *4* α(N)=0.000230 *4*; α(O)=3.52×10^{-5} *5*; α(P)=2.58×10^{-6} *4*
		592.22 *5*	100 *6*	291.188	5/2$^+$	E2	0.00626 *9*	α(K)=0.00530 *8*; α(L)=0.000764 *11*; α(M)=0.0001586 *23*; α(N+..)=3.93×10^{-5} *6* α(N)=3.39×10^{-5} *5*; α(O)=5.07×10^{-6} *8*; α(P)=3.23×10^{-7} *5*
887.135	5/2$^+$	210.54 *6*	1.3 *3*	676.488	3/2$^+$,5/2$^+$	M1,E2	0.135 *11*	α(K)=0.110 *4*; α(L)=0.020 *6*; α(M)=0.0041 *13*; α(N+..)=0.0010 *3* α(N)=0.00087 *25*; α(O)=0.00013 *3*; α(P)=6.5×10^{-6} *5*
		256.57 *6*	5.7 *4*	630.568	5/2$^+$	M1,E2	0.0741 *14*	α(K)=0.0614 *17*; α(L)=0.0100 *18*; α(M)=0.0021 *4*; α(N+..)=0.00052 *9* α(N)=0.00045 *8*; α(O)=6.6×10^{-5} *10*; α(P)=3.7×10^{-6} *4*
		309.56 *5*	3.5 *3*	577.555	7/2$^+$	M1,E2	0.0428 *20*	α(K)=0.036 *3*; α(L)=0.0055 *5*; α(M)=0.00115 *12*; α(N+..)=0.000283 *25* α(N)=0.000245 *23*; α(O)=3.63×10^{-5} *22*; α(P)=2.2×10^{-6} *3*
		347.1 *3*	0.8 *4*	539.799	1/2$^+$			
		584.734 *10*	44.1 *15*	302.395	3/2$^+$	M1+E2	0.0077 *13*	α(K)=0.0066 *12*; α(L)=0.00089 *10*; α(M)=0.000183 *20*; α(N+..)=4.6×10^{-5} *6* α(N)=3.9×10^{-5} *5*; α(O)=6.0×10^{-6} *8*; α(P)=4.2×10^{-7} *9*
		595.94 *9*	100 *3*	291.188	5/2$^+$	M1(+E2)	0.0074 *12*	α(K)=0.0063 *11*; α(L)=0.00085 *10*; α(M)=0.000174 *19*; α(N+..)=4.4×10^{-5} *5* α(N)=3.8×10^{-5} *5*; α(O)=5.7×10^{-6} *8*; α(P)=4.0×10^{-7} *8*
		874.83 *3*	10.4 *5*	12.327	3/2$^+$	M1,E2	0.0029 *5*	α(K)=0.0025 *5*; α(L)=0.00032 *5*; α(M)=6.7×10^{-5} *10*; α(N+..)=1.67×10^{-5} *25* α(N)=1.44×10^{-5} *21*; α(O)=2.2×10^{-6} *4*; α(P)=1.6×10^{-7} *3*
		887.164 *24*	5.53 *25*	0.0	1/2$^+$			
901.80	13/2$^-$	613.6[#] *1*	100[#]	288.252	11/2$^-$	M1+E2	0.0068 *12*	α(K)=0.0058 *10*; α(L)=0.00078 *10*; α(M)=0.000162 *19*; α(N+..)=4.0×10^{-5} *5* α(N)=3.5×10^{-5} *4*; α(O)=5.3×10^{-6} *7*; α(P)=3.7×10^{-7} *8*
923.957	5/2$^+$	293.17[a] *11*	2.6 *5*	630.568	5/2$^+$	M1,E2	0.0501 *16*	α(K)=0.0419 *25*; α(L)=0.0065 *8*; α(M)=0.00136 *17*; α(N+..)=0.00034 *4* α(N)=0.00029 *4*; α(O)=4.3×10^{-5} *4*; α(P)=2.6×10^{-6} *4*
		621.542 *14*	55.1 *13*	302.395	3/2$^+$	M1,E2	0.0066 *11*	α(K)=0.0057 *10*; α(L)=0.00076 *9*; α(M)=0.000156 *18*; α(N+..)=3.9×10^{-5} *5* α(N)=3.4×10^{-5} *4*; α(O)=5.1×10^{-6} *7*; α(P)=3.6×10^{-7} *8*
		632.765 *8*	100 *3*	291.188	5/2$^+$	M1	0.00738 *11*	α(K)=0.00636 *9*; α(L)=0.000812 *12*; α(M)=0.0001666 *24*;

$^{133}_{56}Ba_{77}$-8

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(N+..)=4.19×10^{-5} *6* α(N)=3.60×10^{-5} *5*; α(O)=5.53×10^{-6} *8*; α(P)=4.10×10^{-7} *6*
923.957	5/2$^+$	911.647 *13*	10.0 *4*	12.327	3/2$^+$	M1,E2	0.0027 *5*	α(K)=0.0023 *4*; α(L)=0.00029 *5*; α(M)=6.1×10^{-5} *9*; α(N+..)=1.52×10^{-5} *22* α(N)=1.30×10^{-5} *19*; α(O)=2.0×10^{-6} *3*; α(P)=1.4×10^{-7} *3*
		923.9 *2*	2.31 *13*	0.0	1/2$^+$			
968.97	15/2$^-$	680.7[#] *1*	100[#]	288.252	11/2$^-$	E2	0.00440 *7*	α(K)=0.00374 *6*; α(L)=0.000523 *8*; α(M)=0.0001083 *16*; α(N+..)=2.69×10^{-5} *4* α(N)=2.32×10^{-5} *4*; α(O)=3.49×10^{-6} *5*; α(P)=2.30×10^{-7} *4*
1021.584	3/2$^+$	158.4 *3*	2.5 *11*	862.80	(7/2)$^+$	E2	0.33 *6*	α(K)=0.26 *3*; α(L)=0.055 *24*; α(M)=0.012 *6*; α(N+..)=0.0028 *12* α(N)=0.0024 *11*; α(O)=0.00035 *14*; α(P)=1.48×10^{-5} *5*
		345.1 *4*	2.1 *18*	676.488	3/2$^+$,5/2$^+$			
		481.73 *3*	50 *3*	539.799	1/2$^+$	M1,E2	0.0127 *18*	α(K)=0.0108 *17*; α(L)=0.00150 *11*; α(M)=0.000310 *20*; α(N+..)=7.7×10^{-5} *6* α(N)=6.7×10^{-5} *5*; α(O)=1.00×10^{-5} *9*; α(P)=6.8×10^{-7} *13*
		719.44 *14*	5.0 *11*	302.395	3/2$^+$			
		1009.31 *4*	100 *5*	12.327	3/2$^+$	M1	0.00244 *4*	α(K)=0.00211 *3*; α(L)=0.000265 *4*; α(M)=5.44×10^{-5} *8*; α(N+..)=1.369×10^{-5} *20* α(N)=1.175×10^{-5} *17*; α(O)=1.81×10^{-6} *3*; α(P)=1.352×10^{-7} *19*
		1021.62 *5*	7.7 *5*	0.0	1/2$^+$			
1112.346	3/2$^+$,5/2$^+$,7/2$^+$	435.82 *3*	13.3 *8*	676.488	3/2$^+$,5/2$^+$	E2(+M1)	0.0165 *21*	α(K)=0.0140 *20*; α(L)=0.00198 *9*; α(M)=0.000411 *15*; α(N+..)=0.000102 *5* α(N)=8.8×10^{-5} *4*; α(O)=1.33×10^{-5} *9*; α(P)=8.8×10^{-7} *16*
		534.796 *10*	26.0 *9*	577.555	7/2$^+$	M1,E2	0.0097 *15*	α(K)=0.0083 *14*; α(L)=0.00113 *11*; α(M)=0.000233 *21*; α(N+..)=5.8×10^{-5} *6* α(N)=5.0×10^{-5} *5*; α(O)=7.6×10^{-6} *9*; α(P)=5.2×10^{-7} *11*
		809.976 *19*	22.0 *8*	302.395	3/2$^+$	M1,E2	0.0035 *6*	α(K)=0.0030 *6*; α(L)=0.00039 *6*; α(M)=8.0×10^{-5} *12*; α(N+..)=2.0×10^{-5} *3* α(N)=1.73×10^{-5} *25*; α(O)=2.6×10^{-6} *4*; α(P)=1.9×10^{-7} *4*
		821.13 *3*	6.5 *4*	291.188	5/2$^+$	M1	0.00395 *6*	α(K)=0.00341 *5*; α(L)=0.000432 *6*; α(M)=8.86×10^{-5} *13*; α(N+..)=2.23×10^{-5} *4* α(N)=1.91×10^{-5} *3*; α(O)=2.94×10^{-6} *5*; α(P)=2.19×10^{-7} *3*
		1099.99 *2*	100 *5*	12.327	3/2$^+$	E2(+M1)	0.0017 *3*	α(K)=0.00150 *24*; α(L)=0.00019 *3*; α(M)=3.9×10^{-5} *6*; α(N+..)=9.8×10^{-6} *15* α(N)=8.4×10^{-6} *12*; α(O)=1.29×10^{-6} *19*; α(P)=9.5×10^{-8} *16*
		1111.9[a] *4*	1.2 *5*	0.0	1/2$^+$			
1211.792	3/2$^+$,5/2$^+$	324.76 *10*	18 *3*	887.135	5/2$^+$			

$^{133}_{56}Ba_{77}$-9

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
1211.792	3/2$^+$,5/2$^+$	353.28 *4*	53 *4*	858.499	3/2$^+$	E2(+M1)	0.0294 *24*	α(K)=0.0248 *25*; α(L)=0.00366 *13*; α(M)=0.00076 *4*; α(N+..)=0.000189 *7* α(N)=0.000163 *6*; α(O)=2.43×10^{-5} *4*; α(P)=1.54×10^{-6} *24*
		581.39 *8*	27 *3*	630.568	5/2$^+$	M1,E2	0.0078 *13*	α(K)=0.0067 *12*; α(L)=0.00090 *10*; α(M)=0.000186 *20*; α(N+..)=4.7×10^{-5} *6* α(N)=4.0×10^{-5} *5*; α(O)=6.1×10^{-6} *8*; α(P)=4.2×10^{-7} *9*
		671.997 *17*	80 *17*	539.799	1/2$^+$	M1,E2	0.0055 *10*	α(K)=0.0047 *9*; α(L)=0.00062 *8*; α(M)=0.000128 *16*; α(N+..)=3.2×10^{-5} *5* α(N)=2.8×10^{-5} *4*; α(O)=4.2×10^{-6} *6*; α(P)=3.0×10^{-7} *6*
		909.27 *8*	21.6 *11*	302.395	3/2$^+$	M1	0.00311 *5*	α(K)=0.00269 *4*; α(L)=0.000339 *5*; α(M)=6.95×10^{-5} *10*; α(N+..)=1.749×10^{-5} *25* α(N)=1.501×10^{-5} *21*; α(O)=2.31×10^{-6} *4*; α(P)=1.724×10^{-7} *25*
		920.623 *24*	43.8 *11*	291.188	5/2$^+$	M1	0.00302 *5*	α(K)=0.00261 *4*; α(L)=0.000329 *5*; α(M)=6.75×10^{-5} *10*; α(N+..)=1.699×10^{-5} *24* α(N)=1.458×10^{-5} *21*; α(O)=2.24×10^{-6} *4*; α(P)=1.675×10^{-7} *24*
		1199.447 *22*	47 *3*	12.327	3/2$^+$	M1	0.001653 *24*	α(K)=0.001423 *20*; α(L)=0.0001780 *25*; α(M)=3.65×10^{-5} *6*; α(N+..)=1.517×10^{-5} α(N)=7.88×10^{-6} *11*; α(O)=1.213×10^{-6} *17*; α(P)=9.09×10^{-8} *13*; α(IPF)=5.99×10^{-6} *9*
		1211.760 *25*	100 *6*	0.0	1/2$^+$	M1,E2	0.00142 *21*	α(K)=0.00122 *18*; α(L)=0.000154 *21*; α(M)=3.2×10^{-5} *5*; α(N+..)=1.55×10^{-5} *10* α(N)=6.8×10^{-6} *9*; α(O)=1.04×10^{-6} *15*; α(P)=7.7×10^{-8} *13*; α(IPF)=7.58×10^{-6} *19*
1283.959	3/2$^-$	1283.952 *24*	100	0.0	1/2$^+$	(E1)	0.000555 *8*	α(K)=0.000419 *6*; α(L)=5.10×10^{-5} *8*; α(M)=1.041×10^{-5} *15*; α(N+..)=7.49×10^{-5} *11* α(N)=2.24×10^{-6} *4*; α(O)=3.44×10^{-7} *5*; α(P)=2.56×10^{-8} *4*; α(IPF)=7.22×10^{-5} *11*
1329.319	5/2$^+$	441.9[a] *4*	4 *3*	887.135	5/2$^+$	M1,E2	0.0159 *20*	α(K)=0.0135 *19*; α(L)=0.00191 *9*; α(M)=0.000395 *16*; α(N+..)=9.8×10^{-5} *5* α(N)=8.5×10^{-5} *4*; α(O)=1.28×10^{-5} *9*; α(P)=8.5×10^{-7} *16*
		445.3 *3*	9 *5*	883.39	9/2$^+$	(E2)	0.01365	α(K)=0.01141 *17*; α(L)=0.00178 *3*; α(M)=0.000371 *6*; α(N+..)=9.15×10^{-5} *13* α(N)=7.92×10^{-5} *12*; α(O)=1.166×10^{-5} *17*; α(P)=6.79×10^{-7} *10*
		653.04 *11*	21 *4*	676.488	3/2$^+$,5/2$^+$			
		751.753 *15*	100 *2*	577.555	7/2$^+$	M1	0.00488 *7*	α(K)=0.00421 *6*; α(L)=0.000534 *8*; α(M)=0.0001095 *16*; α(N+..)=2.76×10^{-5} *4* α(N)=2.36×10^{-5} *4*; α(O)=3.64×10^{-6} *5*; α(P)=2.71×10^{-7} *4*
		1038.18 *5*	13.8 *10*	291.188	5/2$^+$	M1	0.00229 *4*	α(K)=0.00198 *3*; α(L)=0.000248 *4*; α(M)=5.09×10^{-5} *8*;

$^{133}_{56}Ba_{77}$-10

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(N+..)=1.282×10^{-5} *18* α(N)=1.100×10^{-5} *16*; α(O)=1.693×10^{-6} *24*; α(P)=1.266×10^{-7} *18*
1329.319	5/2$^+$	1317.24[a] *5*	47 *4*	12.327	3/2$^+$			
		1329.33 *5*	17.4 *15*	0.0	1/2$^+$			
1352.76	7/2$^+$	428.70 *20*	5.0 *18*	923.957	5/2$^+$	M1	0.0194	α(K)=0.01665 *24*; α(L)=0.00215 *3*; α(M)=0.000443 *7*; α(N+..)=0.0001113 *16* α(N)=9.56×10^{-5} *14*; α(O)=1.467×10^{-5} *21*; α(P)=1.081×10^{-6} *16*
		465.53 *11*	12.4 *18*	887.135	5/2$^+$			
		469.41 *5*	25.2 *18*	883.39	9/2$^+$	M1	0.01541	α(K)=0.01326 *19*; α(L)=0.001709 *24*; α(M)=0.000351 *5*; α(N+..)=8.84×10^{-5} *13* α(N)=7.58×10^{-5} *11*; α(O)=1.164×10^{-5} *17*; α(P)=8.60×10^{-7} *12*
		494.5[a] *3*	3.6 *18*	858.499	3/2$^+$			
		722.01 *15*	3.8 *7*	630.568	5/2$^+$			
		775.31 *18*	3.2 *7*	577.555	7/2$^+$	M1	0.00453 *7*	α(K)=0.00391 *6*; α(L)=0.000495 *7*; α(M)=0.0001017 *15*; α(N+..)=2.56×10^{-5} *4* α(N)=2.20×10^{-5} *3*; α(O)=3.38×10^{-6} *5*; α(P)=2.51×10^{-7} *4*
		1061.56 *22*	100 *7*	291.188	5/2$^+$	M1+E2	0.0019 *3*	α(K)=0.0016 *3*; α(L)=0.00021 *3*; α(M)=4.2×10^{-5} *6*; α(N+..)=1.07×10^{-5} *16* α(N)=9.2×10^{-6} *13*; α(O)=1.40×10^{-6} *21*; α(P)=1.03×10^{-7} *18*
		1340.2 *3*	5.3 *9*	12.327	3/2$^+$			
1375.65	11/2$^+$	492.4[#] *1*	19[#] *6*	883.39	9/2$^+$	(M1)	0.01367	α(K)=0.01177 *17*; α(L)=0.001515 *22*; α(M)=0.000311 *5*; α(N+..)=7.83×10^{-5} *11* α(N)=6.72×10^{-5} *10*; α(O)=1.032×10^{-5} *15*; α(P)=7.63×10^{-7} *11*
		798.0[#] *1*	100[#] *13*	577.555	7/2$^+$	E2	0.00301 *5*	α(K)=0.00257 *4*; α(L)=0.000348 *5*; α(M)=7.19×10^{-5} *10*; α(N+..)=1.79×10^{-5} *3* α(N)=1.543×10^{-5} *22*; α(O)=2.33×10^{-6} *4*; α(P)=1.584×10^{-7} *23*
1528.64	3/2,5/2$^+$	1516.34 *20*	47 *13*	12.327	3/2$^+$			
		1528.62 *10*	100 *13*	0.0	1/2$^+$			
1528.99	15/2$^-$	560.0[#] *1*	23.0[#] *9*	968.97	15/2$^-$	D		
		627.3[##] *1*	100[##] *4*	901.80	13/2$^-$	M1+E2	0.0065 *11*	α(K)=0.0055 *10*; α(L)=0.00074 *9*; α(M)=0.000153 *18*; α(N+..)=3.8×10^{-5} *5* α(N)=3.3×10^{-5} *4*; α(O)=5.0×10^{-6} *7*; α(P)=3.5×10^{-7} *7*
1532.40	3/2,5/2,7/2$^+$	1230.06 *9*	100 *13*	302.395	3/2$^+$			
		1241.04 *15*	58 *10*	291.188	5/2$^+$			
1563.399	5/2$^+$	932.98 *7*	52 *4*	630.568	5/2$^+$	M1	0.00293 *5*	α(K)=0.00253 *4*; α(L)=0.000319 *5*; α(M)=6.54×10^{-5} *10*; α(N+..)=1.646×10^{-5} *23* α(N)=1.413×10^{-5} *20*; α(O)=2.17×10^{-6} *3*; α(P)=1.623×10^{-7} *23*
		1261.01 *3*	100 *6*	302.395	3/2$^+$			
		1550.97 *5*	42 *3*	12.327	3/2$^+$			

$^{133}_{56}Ba_{77}$-11

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
1563.399	5/2+	1563.36 *6*	37 *3*	0.0	1/2+			
1620.58	5/2+	733.63[a] *10*	5.6 *9*	887.135	5/2+			
		1043.02 *4*	19.7 *18*	577.555	7/2+	M1	0.00227 *4*	α(K)=0.00196 *3*; α(L)=0.000246 *4*; α(M)=5.04×10^{-5} *7*; α(N+..)=1.268×10^{-5} *18* α(N)=1.088×10^{-5} *16*; α(O)=1.674×10^{-6} *24*; α(P)=1.253×10^{-7} *18*
		1080.9 *1*	7.8 *12*	539.799	1/2+			
		1329.33 *5*	20.4 *18*	291.188	5/2+			
		1608.36 *13*	100 *6*	12.327	3/2+			
		1620.9 *7*	3.0 *12*	0.0	1/2+			
1633.08	13/2+	257.5[#] *1*	<9.5[#]	1375.65	11/2+	M1+E2	0.0733 *13*	α(K)=0.0608 *17*; α(L)=0.0099 *18*; α(M)=0.0021 *4*; α(N+..)=0.00051 *9* α(N)=0.00044 *8*; α(O)=6.5×10^{-5} *10*; α(P)=3.7×10^{-6} *4*
		749.6[#] *1*	100[#] *10*	883.39	9/2+	E2	0.00348 *5*	α(K)=0.00297 *5*; α(L)=0.000407 *6*; α(M)=8.42×10^{-5} *12*; α(N+..)=2.10×10^{-5} *3* α(N)=1.81×10^{-5} *3*; α(O)=2.72×10^{-6} *4*; α(P)=1.83×10^{-7} *3*
1689.75	3/2+,5/2,7/2+	802.3 *4*	63 *30*	887.135	5/2+			
		1111.9[a] *4*	47 *25*	577.555	7/2+			
		1387.41 *7*	72 *8*	302.395	3/2+			
		1398.49 *8*	100 *11*	291.188	5/2+			
		1677.01[a] *9*		12.327	3/2+			
1706.93	3/2,5/2+	848.4 *3*	100 *20*	858.499	3/2+			
		1404.7 *4*	34 *5*	302.395	3/2+			
		1415.9 *3*	47 *5*	291.188	5/2+			
		1694.4 *4*	52 *4*	12.327	3/2+			
		1706.7 *4*	11 *3*	0.0	1/2+			
1712.75	17/2−	743.8[#] *1*	100[#] *3*	968.97	15/2−	M1+E2	0.0043 *8*	α(K)=0.0037 *7*; α(L)=0.00048 *7*; α(M)=9.9×10^{-5} *14*; α(N+..)=2.5×10^{-5} *4* α(N)=2.1×10^{-5} *3*; α(O)=3.3×10^{-6} *5*; α(P)=2.3×10^{-7} *5*
		810.9[#] *1*	43.6[#] *13*	901.80	13/2−	E2	0.00290 *4*	α(K)=0.00247 *4*; α(L)=0.000335 *5*; α(M)=6.91×10^{-5} *10*; α(N+..)=1.723×10^{-5} *25* α(N)=1.483×10^{-5} *21*; α(O)=2.24×10^{-6} *4*; α(P)=1.527×10^{-7} *22*
1769.61	3/2,5/2+	1467.28 *13*	30 *4*	302.395	3/2+			
		1478.72[a] *9*	28 *3*	291.188	5/2+			
		1757.06 *20*	25 *4*	12.327	3/2+			
		1769.60 *7*	100 *8*	0.0	1/2+			
1830.22	3/2,5/2+	1818.1 *4*	83 *17*	12.327	3/2+			
		1830.21 *3*	100 *33*	0.0	1/2+			
1859.11	19/2−	146.4[#] *1*	0.82[#] *5*	1712.75	17/2−	(M1)	0.337	α(K)=0.289 *4*; α(L)=0.0385 *6*; α(M)=0.00795 *12*; α(N+..)=0.00200 *3* α(N)=0.001714 *25*; α(O)=0.000262 *4*; α(P)=1.90×10^{-5} *3*

$^{133}_{56}Ba_{77}$-12

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
1859.11	19/2$^-$	890.1[#] *1*	100[#] *3*	968.97	15/2$^-$	E2	0.00234 *4*	α(K)=0.00200 *3*; α(L)=0.000267 *4*; α(M)=5.50×10^{-5} *8*; α(N+..)=1.375×10^{-5} *20* α(N)=1.183×10^{-5} *17*; α(O)=1.79×10^{-6} *3*; α(P)=1.240×10^{-7} *18*
1942.07	19/2$^+$	83.1[#] *1*	100[#] *10*	1859.11	19/2$^-$	(E1)	0.379	B(E1)(W.u.)=9.E−5 *4* α(K)=0.323 *5*; α(L)=0.0448 *7*; α(M)=0.00918 *14*; α(N+..)=0.00224 *4* α(N)=0.00194 *3*; α(O)=0.000283 *4*; α(P)=1.638×10^{-5} *24*
		229.2[#] *1*	11.00[#] *19*	1712.75	17/2$^-$	E1	0.0232	α(K)=0.0199 *3*; α(L)=0.00258 *4*; α(M)=0.000529 *8*; α(N+..)=0.0001313 *19* α(N)=0.0001132 *16*; α(O)=1.701×10^{-5} *24*; α(P)=1.138×10^{-6} *16* B(E1)(W.u.)=4.5×10^{-7} *20*
2036.19	17/2$^-$	507.2[#] *1*	50[#] *10*	1528.99	15/2$^-$	M1+E2	0.0111 *17*	α(K)=0.0095 *15*; α(L)=0.00130 *11*; α(M)=0.000269 *21*; α(N+..)=6.7×10^{-5} *6* α(N)=5.8×10^{-5} *5*; α(O)=8.7×10^{-6} *9*; α(P)=5.9×10^{-7} *12*
		1067.2[#] *1*	100[#]	968.97	15/2$^-$	M1+E2	0.0019 *3*	α(K)=0.0016 *3*; α(L)=0.00020 *3*; α(M)=4.2×10^{-5} *6*; α(N+..)=1.05×10^{-5} *15* α(N)=9.1×10^{-6} *13*; α(O)=1.39×10^{-6} *21*; α(P)=1.01×10^{-7} *18*
2170.74	19/2$^-$	311.4[#] *1*	6.7[#] *19*	1859.11	19/2$^-$			
		458.0[#] *1*	100[#] *4*	1712.75	17/2$^-$	D		
		641.9[#] *1*	97[#] *5*	1528.99	15/2$^-$	E2	0.00510 *8*	α(K)=0.00433 *6*; α(L)=0.000612 *9*; α(M)=0.0001268 *18*; α(N+..)=3.15×10^{-5} *5* α(N)=2.72×10^{-5} *4*; α(O)=4.07×10^{-6} *6*; α(P)=2.64×10^{-7} *4*
		1201.8[#] *1*	41.0[#] *19*	968.97	15/2$^-$	E2	0.001236 *18*	α(K)=0.001058 *15*; α(L)=0.0001358 *19*; α(M)=2.79×10^{-5} *4*; α(N+..)=1.351×10^{-5} α(N)=6.01×10^{-6} *9*; α(O)=9.17×10^{-7} *13*; α(P)=6.58×10^{-8} *10*; α(IPF)=6.52×10^{-6} *10*
2210.97	15/2$^+$	577.9[#] *1*	<57[#]	1633.08	13/2$^+$	(M1)	0.00921 *13*	α(K)=0.00793 *12*; α(L)=0.001015 *15*; α(M)=0.000209 *3*; α(N+..)=5.24×10^{-5} *8* α(N)=4.50×10^{-5} *7*; α(O)=6.92×10^{-6} *10*; α(P)=5.12×10^{-7} *8*
		835.3[#] *1*	100[#] *17*	1375.65	11/2$^+$	E2	0.00270 *4*	α(K)=0.00231 *4*; α(L)=0.000311 *5*; α(M)=6.42×10^{-5} *9*; α(N+..)=1.602×10^{-5} *23* α(N)=1.379×10^{-5} *20*; α(O)=2.09×10^{-6} *3*; α(P)=1.428×10^{-7} *20*
2366.04	23/2$^+$	423.9[#] *1*	100[#]	1942.07	19/2$^+$	E2	0.01573	α(K)=0.01311 *19*; α(L)=0.00208 *3*; α(M)=0.000434 *6*; α(N+..)=0.0001069 *15* α(N)=9.25×10^{-5} *13*; α(O)=1.359×10^{-5} *19*; α(P)=7.77×10^{-7} *11*
2381.97	21/2$^+$	439.9[#] *1*	100[#]	1942.07	19/2$^+$	M1+E2	0.0161 *21*	α(K)=0.0137 *19*; α(L)=0.00193 *9*; α(M)=0.000400 *16*; α(N+..)=0.000100 *5* α(N)=8.6×10^{-5} *4*; α(O)=1.29×10^{-5} *9*; α(P)=8.6×10^{-7} *16*

$^{133}_{56}Ba_{77}$-13

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
2447.22	17/2$^+$	814.1[#] *1*	100[#]	1633.08	13/2$^+$	E2	0.00287 *4*	α(K)=0.00245 *4*; α(L)=0.000331 *5*; α(M)=6.84×10^{-5} *10*; α(N+..)=1.706×10^{-5} *24* α(N)=1.469×10^{-5} *21*; α(O)=2.22×10^{-6} *4*; α(P)=1.513×10^{-7} *22*
2495.99	(21/2$^+$)	554.0[#] *1*	100[#]	1942.07	19/2$^+$	(M1+E2)	0.0088 *14*	α(K)=0.0075 *13*; α(L)=0.00103 *11*; α(M)=0.000212 *21*; α(N+..)=5.3×10^{-5} *6* α(N)=4.6×10^{-5} *5*; α(O)=6.9×10^{-6} *8*; α(P)=4.8×10^{-7} *10*
2509.26	21/2$^-$	338.6[#] *1*	100[#] *4*	2170.74	19/2$^-$	(M1)	0.0354	α(K)=0.0304 *5*; α(L)=0.00396 *6*; α(M)=0.000815 *12*; α(N+..)=0.000205 *3* α(N)=0.0001760 *25*; α(O)=2.70×10^{-5} *4*; α(P)=1.98×10^{-6} *3*
		650.2[#] *1*	26.4[#] *12*	1859.11	19/2$^-$	M1+E2	0.0059 *10*	α(K)=0.0051 *9*; α(L)=0.00068 *9*; α(M)=0.000139 *17*; α(N+..)=3.5×10^{-5} *5* α(N)=3.0×10^{-5} *4*; α(O)=4.6×10^{-6} *7*; α(P)=3.2×10^{-7} *7*
		796.5[#] *1*	9.0[#] *6*	1712.75	17/2$^-$	E2	0.00302 *5*	α(K)=0.00258 *4*; α(L)=0.000350 *5*; α(M)=7.22×10^{-5} *11*; α(N+..)=1.80×10^{-5} *3* α(N)=1.551×10^{-5} *22*; α(O)=2.34×10^{-6} *4*; α(P)=1.590×10^{-7} *23*
2526.47	19/2$^-$	490.0[#] *5*	60[#] *20*	2036.19	17/2$^-$			
		813.8[#] *1*	100[#] *20*	1712.75	17/2$^-$	M1+E2	0.0035 *6*	α(K)=0.0030 *6*; α(L)=0.00039 *6*; α(M)=7.9×10^{-5} *11*; α(N+..)=2.0×10^{-5} *3* α(N)=1.71×10^{-5} *25*; α(O)=2.6×10^{-6} *4*; α(P)=1.9×10^{-7} *4*
		997.4[#] *1*	40[#] *20*	1528.99	15/2$^-$	E2	0.00182 *3*	α(K)=0.001563 *22*; α(L)=0.000205 *3*; α(M)=4.22×10^{-5} *6*; α(N+..)=1.055×10^{-5} *15* α(N)=9.07×10^{-6} *13*; α(O)=1.379×10^{-6} *20*; α(P)=9.69×10^{-8} *14*
2671.17	21/2$^-$	812.0[#] *5*	100[#] *19*	1859.11	19/2$^-$	(M1+E2)	0.0035 *6*	α(K)=0.0030 *6*; α(L)=0.00039 *6*; α(M)=8.0×10^{-5} *12*; α(N+..)=2.0×10^{-5} *3* α(N)=1.72×10^{-5} *25*; α(O)=2.6×10^{-6} *4*; α(P)=1.9×10^{-7} *4*
		958.3[#] *1*	100[#] *6*	1712.75	17/2$^-$	E2	0.00199 *3*	α(K)=0.001704 *24*; α(L)=0.000225 *4*; α(M)=4.62×10^{-5} *7*; α(N+..)=1.156×10^{-5} *17* α(N)=9.95×10^{-6} *14*; α(O)=1.511×10^{-6} *22*; α(P)=1.056×10^{-7} *15*
2830.44	23/2$^-$	321.3[#] *1*	76[#] *3*	2509.26	21/2$^-$	(M1)	0.0405	α(K)=0.0348 *5*; α(L)=0.00455 *7*; α(M)=0.000936 *14*; α(N+..)=0.000235 *4* α(N)=0.000202 *3*; α(O)=3.10×10^{-5} *5*; α(P)=2.27×10^{-6} *4*
		659.6[#] *1*	<6.8[#]	2170.74	19/2$^-$	E2	0.00476 *7*	α(K)=0.00404 *6*; α(L)=0.000569 *8*; α(M)=0.0001178 *17*; α(N+..)=2.93×10^{-5} *5* α(N)=2.53×10^{-5} *4*; α(O)=3.79×10^{-6} *6*; α(P)=2.48×10^{-7} *4*
		971.5[#] *1*	100[#] *3*	1859.11	19/2$^-$			
2831.10	19/2$^{(+)}$	1118.4[#] *1*	100[#]	1712.75	17/2$^-$	D		
2862.15	21/2$^+$	496.0[#] *5*	<80[#]	2366.04	23/2$^+$			
		920.1[#] *1*	100[#] *20*	1942.07	19/2$^+$	(M1+E2)	0.0026 *5*	α(K)=0.0022 *4*; α(L)=0.00029 *5*; α(M)=5.9×10^{-5} *9*; α(N+..)=1.49×10^{-5}

$^{133}_{56}Ba_{77}$-14

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
								22 α(N)=1.28×10^{-5} *19*; α(O)=2.0×10^{-6} *3*; α(P)=1.4×10^{-7} *3*
2890.38	23/2$^-$	219.2[#] *1*	2.7[#] *5*	2671.17	21/2$^-$	M1+E2	0.119 *8*	α(K)=0.0975 *23*; α(L)=0.017 *5*; α(M)=0.0036 *10*; α(N+..)=0.00088 *23* α(N)=0.00076 *20*; α(O)=0.000110 *25*; α(P)=5.8×10^{-6} *5*
		381.0[#] *5*	18.2[#] *23*	2509.26	21/2$^-$			
		1031.1[#] *1*	100[#] *7*	1859.11	19/2$^-$	E2	0.001695 *24*	α(K)=0.001456 *21*; α(L)=0.000190 *3*; α(M)=3.91×10^{-5} *6*; α(N+..)=9.78×10^{-6} *14* α(N)=8.41×10^{-6} *12*; α(O)=1.280×10^{-6} *18*; α(P)=9.03×10^{-8} *13*
2966.3	21/2$^-$	440.0[#] *5*	<66.7[#]	2526.47	19/2$^-$			
		930.0[#] *5*	100[#]	2036.19	17/2$^-$	E2	0.00212 *3*	α(K)=0.00182 *3*; α(L)=0.000241 *4*; α(M)=4.96×10^{-5} *7*; α(N+..)=1.240×10^{-5} *18* α(N)=1.067×10^{-5} *15*; α(O)=1.619×10^{-6} *23*; α(P)=1.127×10^{-7} *16*
3062.94	21/2$^{(+)}$	231.9[#] *1*	18.8[#] *25*	2831.10	19/2$^{(+)}$	D		
		1203.9[#] *1*	100[#] *6*	1859.11	19/2$^-$	D		
3103.80	25/2$^+$	737.8[#] *1*	100[#]	2366.04	23/2$^+$	M1+E2	0.0044 *8*	α(K)=0.0037 *7*; α(L)=0.00049 *7*; α(M)=0.000101 *14*; α(N+..)=2.5×10^{-5} *4* α(N)=2.2×10^{-5} *3*; α(O)=3.3×10^{-6} *5*; α(P)=2.4×10^{-7} *5*
3115.16	21/2$^+$	137.0[#] *5*	9.6[#] *17*	2978.2	19/2	(M1)	0.406 *7*	α(K)=0.347 *6*; α(L)=0.0464 *8*; α(M)=0.00957 *17*; α(N+..)=0.00240 *5* α(N)=0.00207 *4*; α(O)=0.000316 *6*; α(P)=2.29×10^{-5} *4*
		252.9[#] *1*	17.1[#] *25*	2862.15	21/2$^+$	(M1)	0.0761	α(K)=0.0653 *10*; α(L)=0.00859 *12*; α(M)=0.001769 *25*; α(N+..)=0.000445 *7* α(N)=0.000382 *6*; α(O)=5.85×10^{-5} *9*; α(P)=4.27×10^{-6} *6*
		667.9[#] *1*	37[#] *4*	2447.22	17/2$^+$	E2	0.00461 *7*	α(K)=0.00392 *6*; α(L)=0.000550 *8*; α(M)=0.0001139 *16*; α(N+..)=2.83×10^{-5} *4* α(N)=2.44×10^{-5} *4*; α(O)=3.67×10^{-6} *6*; α(P)=2.40×10^{-7} *4*
		944.4[#] *1*	37[#] *4*	2170.74	19/2$^-$	(E1)	0.000849 *12*	α(K)=0.000736 *11*; α(L)=9.04×10^{-5} *13*; α(M)=1.85×10^{-5} *3*; α(N+..)=4.64×10^{-6} *7* α(N)=3.98×10^{-6} *6*; α(O)=6.10×10^{-7} *9*; α(P)=4.48×10^{-8} *7*
		1173.3[#] *1*	100[#] *4*	1942.07	19/2$^+$	D		
3246.51	23/2$^+$	131.4[#] *1*	100[#] *7*	3115.16	21/2$^+$	(M1)	0.456	α(K)=0.390 *6*; α(L)=0.0522 *8*; α(M)=0.01077 *16*; α(N+..)=0.00270 *4* α(N)=0.00232 *4*; α(O)=0.000355 *5*; α(P)=2.57×10^{-5} *4*
		384.5[#] *1*	<10[#]	2862.15	21/2$^+$	(M1)	0.0255	α(K)=0.0219 *3*; α(L)=0.00285 *4*; α(M)=0.000586 *9*; α(N+..)=0.0001473 *21* α(N)=0.0001264 *18*; α(O)=1.94×10^{-5} *3*; α(P)=1.427×10^{-6} *20*
		416.0[#] *5*	<6.7[#]	2830.44	23/2$^-$			
		737.3[#] *1*	60[#] *3*	2509.26	21/2$^-$	(E1)	0.001391 *20*	α(K)=0.001204 *17*; α(L)=0.0001492 *21*; α(M)=3.05×10^{-5} *5*;

$^{133}_{56}Ba_{77}$-15

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(N+..)=7.65×10^{-6} α(N)=6.57×10^{-6} *10*; α(O)=1.004×10^{-6} *14*; α(P)=7.30×10^{-8} *11*
3246.51	23/2$^+$	750.6[#] *1*	27[#] *7*	2495.99	(21/2$^+$)			
		880.4[#] *1*	53[#] *7*	2366.04	23/2$^+$	(M1)	0.00336 *5*	α(K)=0.00290 *4*; α(L)=0.000366 *6*; α(M)=7.50×10^{-5} *11*; α(N+..)=1.89×10^{-5} *3* α(N)=1.620×10^{-5} *23*; α(O)=2.49×10^{-6} *4*; α(P)=1.86×10^{-7} *3*
		1304.2[#] *1*	30[#] *7*	1942.07	19/2$^+$	E2	0.001064 *15*	α(K)=0.000897 *13*; α(L)=0.0001143 *16*; α(M)=2.34×10^{-5} *4*; α(N+..)=2.84×10^{-5} α(N)=5.05×10^{-6} *7*; α(O)=7.72×10^{-7} *11*; α(P)=5.58×10^{-8} *8*; α(IPF)=2.25×10^{-5} *4*
3255.92	25/2$^-$	365.5[#] *1*	42.7[#] *24*	2890.38	23/2$^-$	(M1)	0.0291	α(K)=0.0250 *4*; α(L)=0.00325 *5*; α(M)=0.000668 *10*; α(N+..)=0.0001679 *24* α(N)=0.0001442 *21*; α(O)=2.21×10^{-5} *4*; α(P)=1.626×10^{-6} *23*
		425.5[#] *1*	46.8[#] *16*	2830.44	23/2$^-$	M1+E2	0.0176 *21*	α(K)=0.0150 *20*; α(L)=0.00212 *8*; α(M)=0.000440 *13*; α(N+..)=0.000110 *5* α(N)=9.4×10^{-5} *4*; α(O)=1.42×10^{-5} *8*; α(P)=9.4×10^{-7} *17*
		746.6[#] *1*	100[#] *3*	2509.26	21/2$^-$	E2	0.00352 *5*	α(K)=0.00300 *5*; α(L)=0.000412 *6*; α(M)=8.51×10^{-5} *12*; α(N+..)=2.12×10^{-5} *3* α(N)=1.83×10^{-5} *3*; α(O)=2.75×10^{-6} *4*; α(P)=1.85×10^{-7} *3*
3345.94	27/2$^+$	980.0[#] *1*	100[#]	2366.04	23/2$^+$	E2	0.00189 *3*	α(K)=0.001623 *23*; α(L)=0.000213 *3*; α(M)=4.39×10^{-5} *7*; α(N+..)=1.098×10^{-5} *16* α(N)=9.45×10^{-6} *14*; α(O)=1.435×10^{-6} *20*; α(P)=1.006×10^{-7} *14*
3373.60	23/2$^{(+)}$	310.8[#] *1*	100[#] *16*	3062.94	21/2$^{(+)}$			
		702.3[#] *1*	26[#] *5*	2671.17	21/2$^-$	(E1)	0.001540 *22*	α(K)=0.001332 *19*; α(L)=0.0001654 *24*; α(M)=3.38×10^{-5} *5*; α(N+..)=8.47×10^{-6} α(N)=7.28×10^{-6} *11*; α(O)=1.112×10^{-6} *16*; α(P)=8.06×10^{-8} *12*
3433.71	25/2$^+$	187.2[#] *1*	100[#] *4*	3246.51	23/2$^+$	(M1)	0.1712	α(K)=0.1467 *21*; α(L)=0.0195 *3*; α(M)=0.00401 *6*; α(N+..)=0.001008 *15* α(N)=0.000866 *13*; α(O)=0.0001325 *19*; α(P)=9.64×10^{-6} *14*
		1067.6[#] *1*	16[#] *13*	2366.04	23/2$^+$	(M1)	0.00215 *3*	α(K)=0.00185 *3*; α(L)=0.000233 *4*; α(M)=4.77×10^{-5} *7*; α(N+..)=1.201×10^{-5} *17* α(N)=1.031×10^{-5} *15*; α(O)=1.586×10^{-6} *23*; α(P)=1.187×10^{-7} *17*
3545.92	27/2$^-$	290.0[#] *1*	100[#] *3*	3255.92	25/2$^-$	(M1)	0.0530	α(K)=0.0455 *7*; α(L)=0.00596 *9*; α(M)=0.001227 *18*; α(N+..)=0.000308 *5* α(N)=0.000265 *4*; α(O)=4.06×10^{-5} *6*; α(P)=2.97×10^{-6} *5*
		655.4[#] *1*	9[#] *3*	2890.38	23/2$^-$			

$^{133}_{56}Ba_{77}$-16

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
3545.92	27/2$^-$	715.6[#] *1*	100[#] *4*	2830.44	23/2$^-$	E2	0.00389 *6*	α(K)=0.00332 *5*; α(L)=0.000459 *7*; α(M)=9.49×10^{-5} *14*; α(N+..)=2.36×10^{-5} *4* α(N)=2.04×10^{-5} *3*; α(O)=3.07×10^{-6} *5*; α(P)=2.04×10^{-7} *3*
3582.69	27/2$^-$	326.8[#] *1*	82[#] *4*	3255.92	25/2$^-$	(M1)	0.0388	α(K)=0.0333 *5*; α(L)=0.00435 *6*; α(M)=0.000895 *13*; α(N+..)=0.000225 *4* α(N)=0.000193 *3*; α(O)=2.96×10^{-5} *5*; α(P)=2.17×10^{-6} *3*
		693.0[#] *5*	10[#] *3*	2890.38	23/2$^-$			
		752.3[#] *1*	100[#] *3*	2830.44	23/2$^-$	E2	0.00345 *5*	α(K)=0.00295 *5*; α(L)=0.000404 *6*; α(M)=8.34×10^{-5} *12*; α(N+..)=2.08×10^{-5} *3* α(N)=1.79×10^{-5} *3*; α(O)=2.70×10^{-6} *4*; α(P)=1.81×10^{-7} *3*
3646.41	(25/2)$^+$	1280.3[#] *1*	100[#]	2366.04	23/2$^+$	M1+E2	0.00127 *18*	α(K)=0.00108 *15*; α(L)=0.000136 *18*; α(M)=2.8×10^{-5} *4*; α(N+..)=2.48×10^{-5} *7* α(N)=6.0×10^{-6} *8*; α(O)=9.2×10^{-7} *13*; α(P)=6.8×10^{-8} *11*; α(IPF)=1.78×10^{-5} *4*
3688.41	(25/2$^-$)	798.0[#] *1*	100[#] *33*	2890.38	23/2$^-$			
		1018.0[#] *5*	<100[#]	2671.17	21/2$^-$			
3700.60	25/2$^{(+)}$	327.0[#] *1*	100[#]	3373.60	23/2$^{(+)}$	(M1)	0.0387	α(K)=0.0333 *5*; α(L)=0.00434 *6*; α(M)=0.000894 *13*; α(N+..)=0.000225 *4* α(N)=0.000193 *3*; α(O)=2.96×10^{-5} *5*; α(P)=2.17×10^{-6} *3*
3709.90	(25/2)	336.3[#] *1*	100[#]	3373.60	23/2$^{(+)}$	D		
3710.68	27/2$^+$	276.9[#] *1*	100[#]	3433.71	25/2$^+$	(M1)	0.0598	α(K)=0.0514 *8*; α(L)=0.00674 *10*; α(M)=0.001388 *20*; α(N+..)=0.000349 *5* α(N)=0.000300 *5*; α(O)=4.59×10^{-5} *7*; α(P)=3.36×10^{-6} *5*
3838.92	29/2$^+$	493.1[#] *1*	100[#] *11*	3345.94	27/2$^+$	(M1)	0.01362	α(K)=0.01173 *17*; α(L)=0.001509 *22*; α(M)=0.000310 *5*; α(N+..)=7.80×10^{-5} *11* α(N)=6.70×10^{-5} *10*; α(O)=1.028×10^{-5} *15*; α(P)=7.60×10^{-7} *11*
		735.0[#] *1*	44[#] *11*	3103.80	25/2$^+$			
3967.85		1601.8[#] *1*	100[#]	2366.04	23/2$^+$			
3987.98	27/2$^-$	1097.6[#] *1*	100[#]	2890.38	23/2$^-$	E2	0.001484 *21*	α(K)=0.001276 *18*; α(L)=0.0001654 *24*; α(M)=3.40×10^{-5} *5*; α(N+..)=8.51×10^{-6} α(N)=7.32×10^{-6} *11*; α(O)=1.115×10^{-6} *16*; α(P)=7.92×10^{-8} *11*
4084.6	27/2$^{(+)}$	384.0[#] *5*	100[#] *20*	3700.60	25/2$^{(+)}$	(M1)	0.0256	α(K)=0.0220 *4*; α(L)=0.00286 *5*; α(M)=0.000588 *9*; α(N+..)=0.0001478 *22* α(N)=0.0001269 *19*; α(O)=1.95×10^{-5} *3*; α(P)=1.432×10^{-6} *21*
		711.0[#] *5*	<57[#]	3373.60	23/2$^{(+)}$			
4145.58	29/2$^+$	799.6[#] *1*	56[#] *22*	3345.94	27/2$^+$			

$^{133}_{56}Ba_{77}$-17

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
4145.58	29/2$^+$	1041.8[#] *1*	100[#] *11*	3103.80	25/2$^+$	E2	0.001658 *24*	α(K)=0.001424 *20*; α(L)=0.000186 *3*; α(M)=3.82×10^{-5} *6*; α(N+..)=9.56×10^{-6} *14* α(N)=8.22×10^{-6} *12*; α(O)=1.251×10^{-6} *18*; α(P)=8.84×10^{-8} *13*
4179.06	29/2$^+$	468.4[#] *1*	100[#]	3710.68	27/2$^+$	(M1)	0.01549	α(K)=0.01333 *19*; α(L)=0.001718 *24*; α(M)=0.000353 *5*; α(N+..)=8.88×10^{-5} *13* α(N)=7.63×10^{-5} *11*; α(O)=1.171×10^{-5} *17*; α(P)=8.64×10^{-7} *13*
4194.42	29/2$^-$	938.4[#] *1*	100[#]	3255.92	25/2$^-$	E2	0.00208 *3*	α(K)=0.001784 *25*; α(L)=0.000236 *4*; α(M)=4.86×10^{-5} *7*; α(N+..)=1.214×10^{-5} *17* α(N)=1.044×10^{-5} *15*; α(O)=1.585×10^{-6} *23*; α(P)=1.105×10^{-7} *16*
4203.20	31/2$^+$	857.2[#] *1*	100[#]	3345.94	27/2$^+$	E2	0.00255 *4*	α(K)=0.00218 *3*; α(L)=0.000292 *4*; α(M)=6.03×10^{-5} *9*; α(N+..)=1.505×10^{-5} *21* α(N)=1.295×10^{-5} *19*; α(O)=1.96×10^{-6} *3*; α(P)=1.348×10^{-7} *19*
4223.82	(29/2$^+$)	513.1[#] *1*	100[#] *10*	3710.68	27/2$^+$	(M1)	0.01234	α(K)=0.01063 *15*; α(L)=0.001366 *20*; α(M)=0.000281 *4*; α(N+..)=7.06×10^{-5} *10* α(N)=6.06×10^{-5} *9*; α(O)=9.30×10^{-6} *13*; α(P)=6.88×10^{-7} *10*
		877.8[#] *1*	90[#] *20*	3345.94	27/2$^+$			
4242.86	31/2$^-$	660.1[#] *1*	100[#] *7*	3582.69	27/2$^-$	E2	0.00475 *7*	α(K)=0.00404 *6*; α(L)=0.000568 *8*; α(M)=0.0001176 *17*; α(N+..)=2.92×10^{-5} *4* α(N)=2.52×10^{-5} *4*; α(O)=3.78×10^{-6} *6*; α(P)=2.47×10^{-7} *4*
		697.0[#] *1*	71[#] *6*	3545.92	27/2$^-$	E2	0.00415 *6*	α(K)=0.00353 *5*; α(L)=0.000492 *7*; α(M)=0.0001017 *15*; α(N+..)=2.53×10^{-5} *4* α(N)=2.18×10^{-5} *3*; α(O)=3.28×10^{-6} *5*; α(P)=2.17×10^{-7} *3*
4255.82	29/2$^+$	545.1[#] *1*	100[#]	3710.68	27/2$^+$	(M1)	0.01063	α(K)=0.00915 *13*; α(L)=0.001174 *17*; α(M)=0.000241 *4*; α(N+..)=6.07×10^{-5} *9* α(N)=5.21×10^{-5} *8*; α(O)=8.00×10^{-6} *12*; α(P)=5.92×10^{-7} *9*
		1152.1[#] *1*	21[#] *5*	3103.80	25/2$^+$			
4402.41	(27/2)	756.0[#] *5*	<100[#]	3646.41	(25/2)$^+$			
4421.91	31/2$^-$	227.4[#] *1*	24.3[#] *15*	4194.42	29/2$^-$	(M1)	0.1011	α(K)=0.0867 *13*; α(L)=0.01144 *16*; α(M)=0.00236 *4*; α(N+..)=0.000592 *9* α(N)=0.000509 *8*; α(O)=7.79×10^{-5} *11*; α(P)=5.68×10^{-6} *8*
		839.4[#] *1*	100[#] *4*	3582.69	27/2$^-$	E2	0.00267 *4*	α(K)=0.00229 *4*; α(L)=0.000308 *5*; α(M)=6.34×10^{-5} *9*; α(N+..)=1.583×10^{-5} *23* α(N)=1.363×10^{-5} *19*; α(O)=2.06×10^{-6} *3*; α(P)=1.413×10^{-7} *20*
		875.9[#] *1*	56[#] *4*	3545.92	27/2$^-$	E2	0.00243 *4*	α(K)=0.00208 *3*; α(L)=0.000278 *4*; α(M)=5.72×10^{-5} *8*; α(N+..)=1.429×10^{-5} *20* α(N)=1.229×10^{-5} *18*; α(O)=1.86×10^{-6} *3*; α(P)=1.285×10^{-7} *18*

$^{133}_{56}Ba_{77}$-18

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
4425.08	(27/2$^+$)	778.6[#] *1*	83[#] *17*	3646.41	(25/2)$^+$	D		
		1321.3[#] *1*	100[#] *17*	3103.80	25/2$^+$	D		
4485.34	31/2$^+$	261.4[#] *1*	57[#] *7*	4223.82	(29/2$^+$)	(M1)	0.0697	α(K)=0.0598 *9*; α(L)=0.00786 *11*; α(M)=0.001619 *23*; α(N+..)=0.000407 *6* α(N)=0.000349 *5*; α(O)=5.35×10^{-5} *8*; α(P)=3.91×10^{-6} *6*
		282.2[#] *1*	64[#] *7*	4203.20	31/2$^+$	(M1)	0.0569	α(K)=0.0489 *7*; α(L)=0.00641 *9*; α(M)=0.001319 *19*; α(N+..)=0.000332 *5* α(N)=0.000285 *4*; α(O)=4.36×10^{-5} *7*; α(P)=3.19×10^{-6} *5*
		774.7[#] *1*	36[#] *7*	3710.68	27/2$^+$	E2	0.00322 *5*	α(K)=0.00275 *4*; α(L)=0.000375 *6*; α(M)=7.74×10^{-5} *11*; α(N+..)=1.93×10^{-5} *3* α(N)=1.662×10^{-5} *24*; α(O)=2.51×10^{-6} *4*; α(P)=1.695×10^{-7} *24*
		1139.3[#] *1*	100[#] *7*	3345.94	27/2$^+$	E2	0.001374 *20*	α(K)=0.001181 *17*; α(L)=0.0001524 *22*; α(M)=3.13×10^{-5} *5*; α(N+..)=9.32×10^{-6} α(N)=6.74×10^{-6} *10*; α(O)=1.028×10^{-6} *15*; α(P)=7.34×10^{-8} *11*; α(IPF)=1.482×10^{-6} *22*
4500.6	29/2$^{(+)}$	416.0[#] *5*	100[#]	4084.6	27/2$^{(+)}$			
4502.44	31/2$^+$	246.6[#] *1*	71[#] *4*	4255.82	29/2$^+$	D		
		323.5[#] *1*	64[#] *7*	4179.06	29/2$^+$	(M1)	0.0398	α(K)=0.0342 *5*; α(L)=0.00447 *7*; α(M)=0.000919 *13*; α(N+..)=0.000231 *4* α(N)=0.000198 *3*; α(O)=3.04×10^{-5} *5*; α(P)=2.23×10^{-6} *4*
		791.7[#] *1*	100[#] *7*	3710.68	27/2$^+$	E2	0.00306 *5*	α(K)=0.00261 *4*; α(L)=0.000355 *5*; α(M)=7.33×10^{-5} *11*; α(N+..)=1.83×10^{-5} *3* α(N)=1.574×10^{-5} *22*; α(O)=2.38×10^{-6} *4*; α(P)=1.613×10^{-7} *23*
		1156.7[#] *1*	64[#] *7*	3345.94	27/2$^+$			
4633.61	(29/2)	1051.0[#] *5*	100[#]	3582.69	27/2$^-$			
4657.81	29/2$^-$	232.7[#] *1*	15[#] *3*	4425.08	(27/2$^+$)			
		255.4[#] *1*	17.8[#] *10*	4402.41	(27/2)	D		
		690.6[#a] *1*	8[#] *3*	3967.85				
		1075.1[#] *1*	100[#] *5*	3582.69	27/2$^-$	M1+E2	0.0018 *3*	α(K)=0.00158 *25*; α(L)=0.00020 *3*; α(M)=4.1×10^{-5} *6*; α(N+..)=1.04×10^{-5} *15* α(N)=8.9×10^{-6} *13*; α(O)=1.36×10^{-6} *20*; α(P)=1.00×10^{-7} *17*
		1311.9[#] *1*	10.0[#] *17*	3345.94	27/2$^+$	D		
4824.51	31/2$^-$	166.7[#] *1*	100.0[#] *9*	4657.81	29/2$^-$	D		
		190.9[#] *1*	6.5[#] *11*	4633.61	(29/2)	D		
4830.57	33/2$^+$	345.3[#] *1*	14[#] *6*	4485.34	31/2$^+$	D		

$^{133}_{56}Ba_{77}$-19

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
4830.57	33/2$^+$	627.3[&#] *1*	100[&#] *6*	4203.20	31/2$^+$	(M1)	0.00754 *11*	α(K)=0.00649 *9*; α(L)=0.000829 *12*; α(M)=0.0001702 *24*; α(N+..)=4.28×10^{-5} *6* α(N)=3.68×10^{-5} *6*; α(O)=5.65×10^{-6} *8*; α(P)=4.19×10^{-7} *6*
5001.45	33/2$^+$	499.1[#] *1*	100[#] *9*	4502.44	31/2$^+$	(M1)	0.01322	α(K)=0.01138 *16*; α(L)=0.001464 *21*; α(M)=0.000301 *5*; α(N+..)=7.57×10^{-5} *11* α(N)=6.50×10^{-5} *9*; α(O)=9.97×10^{-6} *14*; α(P)=7.37×10^{-7} *11*
		822.3[#] *1*	18[#] *5*	4179.06	29/2$^+$	E2	0.00280 *4*	α(K)=0.00240 *4*; α(L)=0.000323 *5*; α(M)=6.67×10^{-5} *10*; α(N+..)=1.665×10^{-5} *24* α(N)=1.433×10^{-5} *20*; α(O)=2.17×10^{-6} *3*; α(P)=1.480×10^{-7} *21*
5058.11	33/2$^-$	233.6[#] *1*	100[#]	4824.51	31/2$^-$	(M1)	0.0940	α(K)=0.0807 *12*; α(L)=0.01064 *15*; α(M)=0.00219 *3*; α(N+..)=0.000551 *8* α(N)=0.000473 *7*; α(O)=7.24×10^{-5} *11*; α(P)=5.29×10^{-6} *8*
5174.16	33/2$^+$	918.4[#] *1*	100[#] *13*	4255.82	29/2$^+$	E2	0.00218 *3*	α(K)=0.00187 *3*; α(L)=0.000248 *4*; α(M)=5.11×10^{-5} *8*; α(N+..)=1.277×10^{-5} *18* α(N)=1.099×10^{-5} *16*; α(O)=1.667×10^{-6} *24*; α(P)=1.158×10^{-7} *17*
		995.0[#] *5*	25[#] *13*	4179.06	29/2$^+$			
5242.24	35/2$^+$	411.6[#] *1*	11.7[#] *17*	4830.57	33/2$^+$	(M1)		
		1039.0[#] *1*	100[#] *5*	4203.20	31/2$^+$	E2	0.001667 *24*	α(K)=0.001432 *20*; α(L)=0.000187 *3*; α(M)=3.84×10^{-5} *6*; α(N+..)=9.62×10^{-6} *14* α(N)=8.27×10^{-6} *12*; α(O)=1.258×10^{-6} *18*; α(P)=8.89×10^{-8} *13*
5263.4	(33/2$^-$)	1069.0[#] *5*	100[#]	4194.42	29/2$^-$			
5350.41	35/2$^-$	292.3[#] *1*	100[#]	5058.11	33/2$^-$	(M1)	0.0519	α(K)=0.0446 *7*; α(L)=0.00584 *9*; α(M)=0.001202 *17*; α(N+..)=0.000302 *5* α(N)=0.000259 *4*; α(O)=3.98×10^{-5} *6*; α(P)=2.91×10^{-6} *4*
5391.72	35/2$^-$	969.8[#] *1*	100[#] *7*	4421.91	31/2$^-$	E2	0.00194 *3*	α(K)=0.001660 *24*; α(L)=0.000219 *3*; α(M)=4.50×10^{-5} *7*; α(N+..)=1.125×10^{-5} *16* α(N)=9.68×10^{-6} *14*; α(O)=1.470×10^{-6} *21*; α(P)=1.029×10^{-7} *15*
		1148.9[#] *1*	16.7[#] *19*	4242.86	31/2$^-$	E2	0.001351 *19*	α(K)=0.001161 *17*; α(L)=0.0001497 *21*; α(M)=3.07×10^{-5} *5*; α(N+..)=9.65×10^{-6} α(N)=6.62×10^{-6} *10*; α(O)=1.009×10^{-6} *15*; α(P)=7.21×10^{-8} *10*; α(IPF)=1.95×10^{-6} *3*
5417.80	35/2$^+$	243.7[#] *1*	22[#] *2*	5174.16	33/2$^+$	D		
		415.9[#a] *1*	25[#] *5*	5001.45	33/2$^+$	(M1)	0.0209	α(K)=0.0180 *3*; α(L)=0.00233 *4*; α(M)=0.000478 *7*; α(N+..)=0.0001203 *17* α(N)=0.0001033 *15*; α(O)=1.585×10^{-5} *23*; α(P)=1.168×10^{-6} *17* E_γ: poor fit.

$^{133}_{56}Ba_{77}$-20

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
5417.80	35/2$^+$	586.0[#] *5*	15[#] *5*	4830.57	33/2$^+$			E_γ: poor fit.
		915.5[#] *1*	100[#] *5*	4502.44	31/2$^+$	E2	0.00220 *3*	α(K)=0.00188 *3*; α(L)=0.000250 *4*; α(M)=5.15×10^{-5} *8*; α(N+..)=1.286×10^{-5} *18* α(N)=1.107×10^{-5} *16*; α(O)=1.679×10^{-6} *24*; α(P)=1.166×10^{-7} *17*
		932.3[#] *1*	40[#] *5*	4485.34	31/2$^+$	E2	0.00211 *3*	α(K)=0.00181 *3*; α(L)=0.000240 *4*; α(M)=4.93×10^{-5} *7*; α(N+..)=1.233×10^{-5} *18* α(N)=1.060×10^{-5} *15*; α(O)=1.610×10^{-6} *23*; α(P)=1.121×10^{-7} *16*
5430.11	33/2$^-$	1187.2[#] *1*	100[#]	4242.86	31/2$^-$	M1+E2	0.00148 *22*	α(K)=0.00127 *19*; α(L)=0.000161 *22*; α(M)=3.3×10^{-5} *5*; α(N+..)=1.31×10^{-5} *11* α(N)=7.1×10^{-6} *10*; α(O)=1.09×10^{-6} *16*; α(P)=8.0×10^{-8} *13*; α(IPF)=4.82×10^{-6} *13*
5465.17	(35/2)$^+$	634.6[#] *1*	100[#]	4830.57	33/2$^+$	M1+E2	0.0063 *11*	α(K)=0.0054 *10*; α(L)=0.00072 *9*; α(M)=0.000148 *18*; α(N+..)=3.7×10^{-5} *5* α(N)=3.2×10^{-5} *4*; α(O)=4.8×10^{-6} *7*; α(P)=3.4×10^{-7} *7*
5520.56	35/2$^-$	1278.0[#] *5*	100[#]	4242.86	31/2$^-$	E2	0.001102 *16*	α(K)=0.000935 *14*; α(L)=0.0001192 *17*; α(M)=2.45×10^{-5} *4*; α(N+..)=2.38×10^{-5} α(N)=5.27×10^{-6} *8*; α(O)=8.05×10^{-7} *12*; α(P)=5.81×10^{-8} *9*; α(IPF)=1.77×10^{-5} *3*
5661.86	35/2$^-$	231.7[#] *1*	29[#] *10*	5430.11	33/2$^-$			
		1419.0[#] *1*	100[#] *5*	4242.86	31/2$^-$	E2	0.000932 *13*	α(K)=0.000760 *11*; α(L)=9.60×10^{-5} *14*; α(M)=1.97×10^{-5} *3*; α(N+..)=5.70×10^{-5} *8* α(N)=4.24×10^{-6} *6*; α(O)=6.49×10^{-7} *9*; α(P)=4.73×10^{-8} *7*; α(IPF)=5.20×10^{-5} *8*
5735.61	37/2$^-$	385.2[#] *1*	100[#]	5350.41	35/2$^-$			
5858.16	37/2$^+$	615.8[#] *1*	100[#] *15*	5242.24	35/2$^+$	(M1)	0.00788 *11*	α(K)=0.00679 *10*; α(L)=0.000868 *13*; α(M)=0.0001782 *25*; α(N+..)=4.48×10^{-5} α(N)=3.85×10^{-5} *6*; α(O)=5.91×10^{-6} *9*; α(P)=4.39×10^{-7} *7*
		1027.7[#] *1*	46[#] *8*	4830.57	33/2$^+$	E2	0.001707 *24*	α(K)=0.001466 *21*; α(L)=0.000192 *3*; α(M)=3.94×10^{-5} *6*; α(N+..)=9.86×10^{-6} *14* α(N)=8.48×10^{-6} *12*; α(O)=1.289×10^{-6} *18*; α(P)=9.09×10^{-8} *13*
5936.24	37/2$^+$	518.3[#] *1*	100[#] *8*	5417.80	35/2$^+$	(M1)	0.01204	α(K)=0.01036 *15*; α(L)=0.001331 *19*; α(M)=0.000274 *4*; α(N+..)=6.88×10^{-5} *10* α(N)=5.91×10^{-5} *9*; α(O)=9.07×10^{-6} *13*; α(P)=6.71×10^{-7} *10*
		935.0[#] *5*	46[#] *8*	5001.45	33/2$^+$	[E2]	0.00210 *3*	α(K)=0.00180 *3*; α(L)=0.000238 *4*; α(M)=4.90×10^{-5} *7*; α(N+..)=1.224×10^{-5} *18* α(N)=1.053×10^{-5} *15*; α(O)=1.599×10^{-6} *23*; α(P)=1.114×10^{-7} *16*
5983.71	37/2$^-$	321.8[#] *1*	100[#] *16*	5661.86	35/2$^-$			

$^{133}_{56}Ba_{77}$-21

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
5983.71	37/2$^-$	463.1[#] *1*	63[#] *5*	5520.56	35/2$^-$	(M1)	0.01594	α(K)=0.01371 *20*; α(L)=0.001769 *25*; α(M)=0.000364 *5*; α(N+..)=9.14×10^{-5} *13* α(N)=7.85×10^{-5} *11*; α(O)=1.205×10^{-5} *17*; α(P)=8.90×10^{-7} *13*
		592.1[#] *1*	68[#] *5*	5391.72	35/2$^-$	(M1)	0.00868 *13*	α(K)=0.00747 *11*; α(L)=0.000956 *14*; α(M)=0.000196 *3*; α(N+..)=4.94×10^{-5} *7* α(N)=4.24×10^{-5} *6*; α(O)=6.51×10^{-6} *10*; α(P)=4.83×10^{-7} *7*
6237.0	39/2$^-$	501.4[#] *1*	100[#]	5735.61	37/2$^-$	(M1)	0.01307	α(K)=0.01125 *16*; α(L)=0.001447 *21*; α(M)=0.000297 *5*; α(N+..)=7.48×10^{-5} *11* α(N)=6.42×10^{-5} *9*; α(O)=9.86×10^{-6} *14*; α(P)=7.29×10^{-7} *11*
6277.35	39/2$^+$	419.2[#] *1*	30.5[#] *22*	5858.16	37/2$^+$	(M1)	0.0205	α(K)=0.01762 *25*; α(L)=0.00228 *4*; α(M)=0.000469 *7*; α(N+..)=0.0001179 *17* α(N)=0.0001012 *15*; α(O)=1.553×10^{-5} *22*; α(P)=1.145×10^{-6} *16*
		1035.1[#] *1*	100[#] *5*	5242.24	35/2$^+$	E2	0.001681 *24*	α(K)=0.001444 *21*; α(L)=0.000188 *3*; α(M)=3.88×10^{-5} *6*; α(N+..)=9.70×10^{-6} *14* α(N)=8.34×10^{-6} *12*; α(O)=1.269×10^{-6} *18*; α(P)=8.96×10^{-8} *13*
6307.92	39/2$^-$	324.3[#] *1*	50[#] *8*	5983.71	37/2$^-$	(M1)	0.0396	α(K)=0.0340 *5*; α(L)=0.00444 *7*; α(M)=0.000913 *13*; α(N+..)=0.000230 *4* α(N)=0.000197 *3*; α(O)=3.02×10^{-5} *5*; α(P)=2.22×10^{-6} *4*
		916.2[#] *1*	100[#] *8*	5391.72	35/2$^-$	E2	0.00219 *3*	α(K)=0.00188 *3*; α(L)=0.000250 *4*; α(M)=5.14×10^{-5} *8*; α(N+..)=1.284×10^{-5} *18* α(N)=1.105×10^{-5} *16*; α(O)=1.676×10^{-6} *24*; α(P)=1.164×10^{-7} *17*
6366.90	39/2$^-$	383.1[#] *1*	67[#] *17*	5983.71	37/2$^-$			
		846.4[#] *1*	100[#] *25*	5520.56	35/2$^-$	E2	0.00262 *4*	α(K)=0.00224 *4*; α(L)=0.000301 *5*; α(M)=6.22×10^{-5} *9*; α(N+..)=1.551×10^{-5} *22* α(N)=1.335×10^{-5} *19*; α(O)=2.02×10^{-6} *3*; α(P)=1.387×10^{-7} *20*
		975.1[#] *1*	42[#] *8*	5391.72	35/2$^-$			
6425.78	39/2$^+$	489.4[#] *1*	19[#] *5*	5936.24	37/2$^+$			
		1008.1[#] *1*	100[#] *10*	5417.80	35/2$^+$	E2	0.001779 *25*	α(K)=0.001528 *22*; α(L)=0.000200 *3*; α(M)=4.12×10^{-5} *6*; α(N+..)=1.029×10^{-5} *1* α(N)=8.85×10^{-6} *13*; α(O)=1.346×10^{-6} *19*; α(P)=9.47×10^{-8} *14*
6546.16		688.0[#] *1*	100[#]	5858.16	37/2$^+$			
6749.51	41/2$^-$	382.5[#] *1*	71[#] *18*	6366.90	39/2$^-$	(M1)	0.0259	α(K)=0.0222 *4*; α(L)=0.00289 *4*; α(M)=0.000594 *9*; α(N+..)=0.0001493 *21* α(N)=0.0001282 *18*; α(O)=1.97×10^{-5} *3*; α(P)=1.446×10^{-6} *21*
		441.7[#] *1*	100[#] *12*	6307.92	39/2$^-$	(M1)	0.0180	α(K)=0.01544 *22*; α(L)=0.00199 *3*; α(M)=0.000410 *6*; α(N+..)=0.0001031 *15* α(N)=8.85×10^{-5} *13*; α(O)=1.359×10^{-5} *19*; α(P)=1.002×10^{-6} *14*
6818.0	41/2$^-$	581.0[#] *1*	100[#] *5*	6237.0	39/2$^-$	(M1)	0.00909 *13*	α(K)=0.00783 *11*; α(L)=0.001002 *14*; α(M)=0.000206 *3*;

$^{133}_{56}Ba_{77}$-22

Adopted Levels, Gammas (continued)

γ(^{133}Ba) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(N+..)=5.18×10^{-5} *8* α(N)=4.44×10^{-5} *7*; α(O)=6.82×10^{-6} *10*; α(P)=5.06×10^{-7} *7*
6818.0	41/2$^-$	1081.5[#a] *1*	14[#] *5*	5735.61	37/2$^-$			
6955.08	41/2$^+$	529.3[#] *1*	100[#]	6425.78	39/2$^+$			
6980.56	(41/2$^+$)	703.2[#] *1*	100[#]	6277.35	39/2$^+$			
7217.71	43/2$^-$	468.2[#] *1*	100[#]	6749.51	41/2$^-$	(M1)	0.01551	α(K)=0.01334 *19*; α(L)=0.001720 *25*; α(M)=0.000354 *5*; α(N+..)=8.89×10^{-5} *13* α(N)=7.63×10^{-5} *11*; α(O)=1.172×10^{-5} *17*; α(P)=8.65×10^{-7} *13*
7421.0	43/2$^-$	603.0[#] *5*	100[#] *10*	6818.0	41/2$^-$	(M1)	0.00830 *12*	α(K)=0.00715 *11*; α(L)=0.000914 *13*; α(M)=0.000188 *3*; α(N+..)=4.72×10^{-5} *7* α(N)=4.05×10^{-5} *6*; α(O)=6.23×10^{-6} *9*; α(P)=4.62×10^{-7} *7*
		1184.0[#] *5*	30[#] *10*	6237.0	39/2$^-$			
7431.38	(43/2$^+$)	476.3[#] *1*	100[#] *33*	6955.08	41/2$^+$			
		1005.6[#] *1*	100[#] *17*	6425.78	39/2$^+$			
7585.86	43/2$^+$	1308.5[#] *1*	100[#]	6277.35	39/2$^+$			
8052.0	45/2$^-$	631.0[#] *5*	100[#] *14*	7421.0	43/2$^-$	(M1)	0.00743 *11*	α(K)=0.00640 *9*; α(L)=0.000817 *12*; α(M)=0.0001678 *24*; α(N+..)=4.22×10^{-5} *6* α(N)=3.62×10^{-5} *6*; α(O)=5.57×10^{-6} *8*; α(P)=4.13×10^{-7} *6*
		1234.0[#] *5*	86[#] *14*	6818.0	41/2$^-$			

[†] Additional information 1.
[‡] From ^{133}La ε decay (3.912 h) for levels below 1830 keV, otherwise from ^{124}Sn(^{13}C,4nγ), except as noted.
[#] From ^{124}Sn(^{13}C,4nγ).
[@] From α(exp), γ(θ) and DCO ratios in ^{133}La ε decay (3.912 h) and ^{124}Sn(^{13}C,4nγ).
[&] Multiply placed with intensity suitably divided.
[a] Placement of transition in the level scheme is uncertain.

$^{133}_{56}Ba_{77}$-23

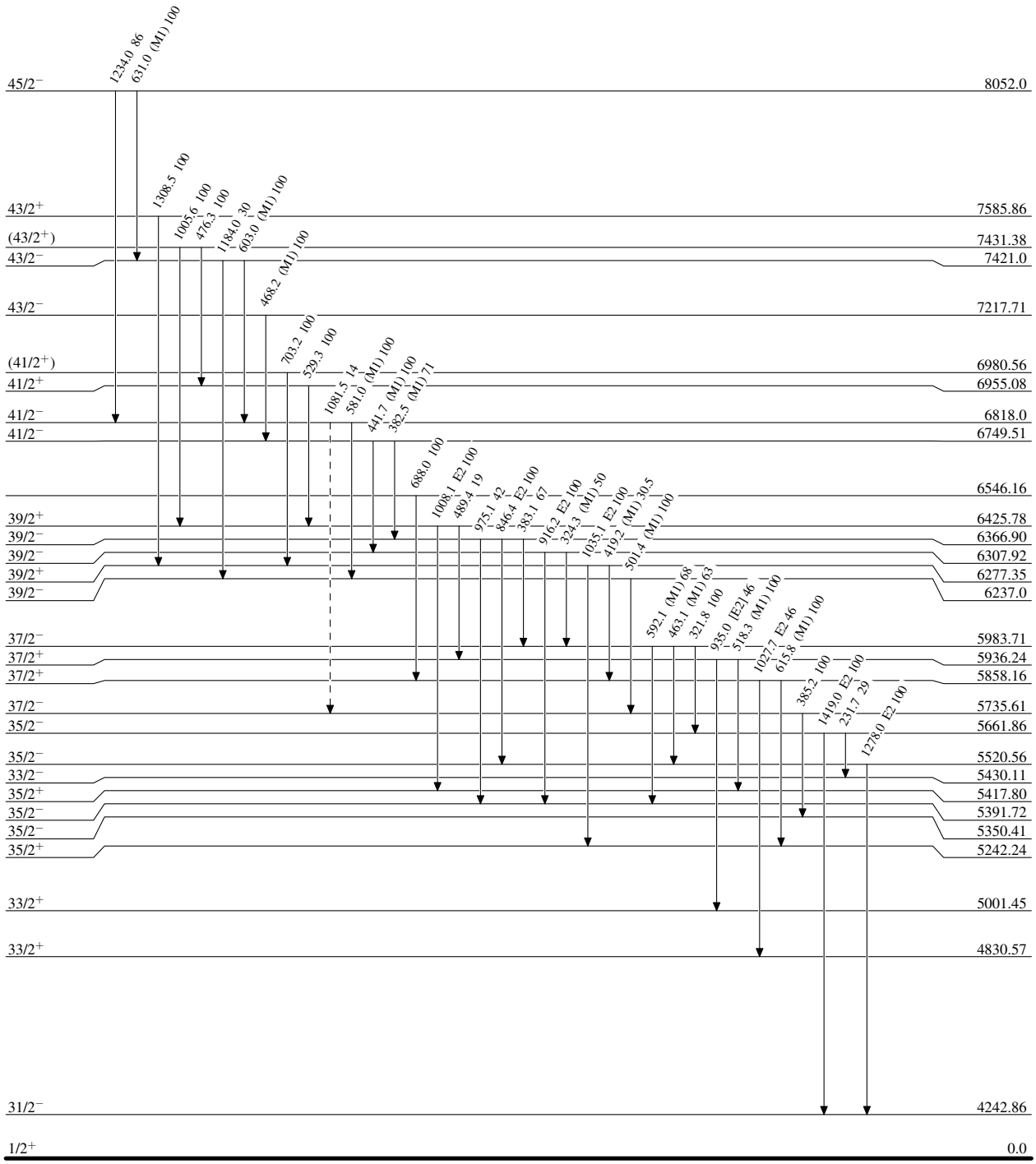
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{133}_{56}Ba_{77}$

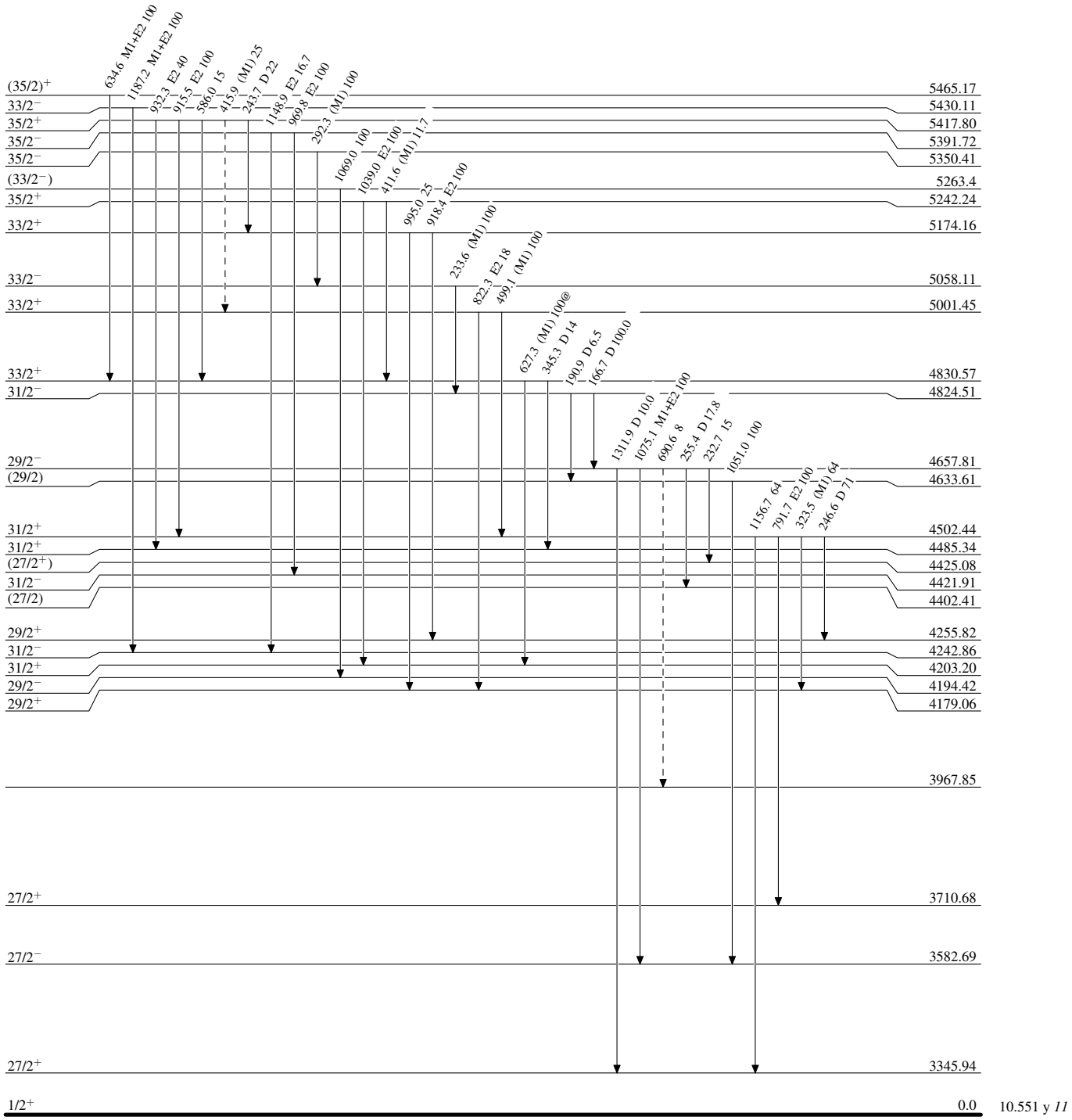
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)

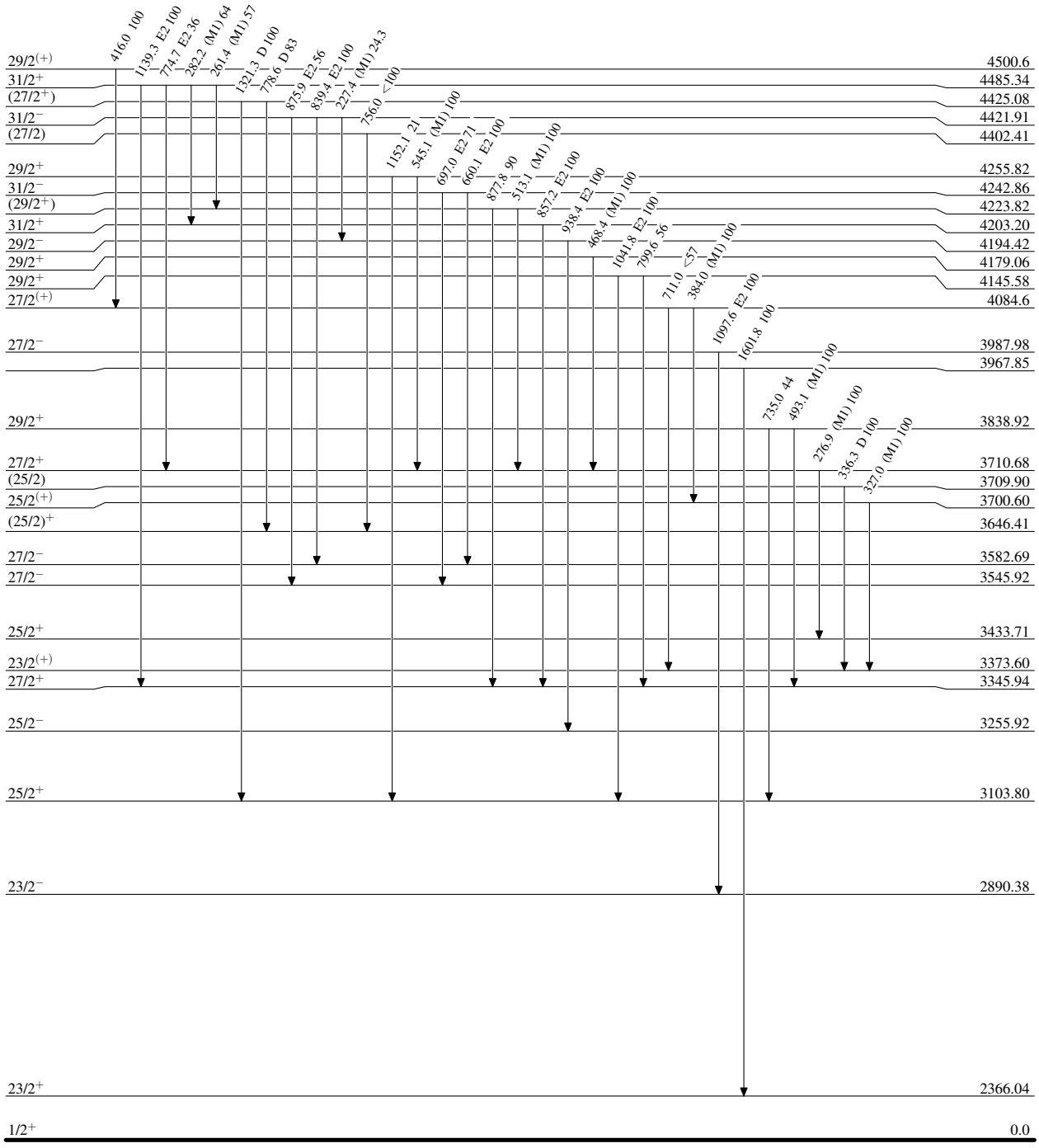


$^{133}_{56}Ba_{77}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

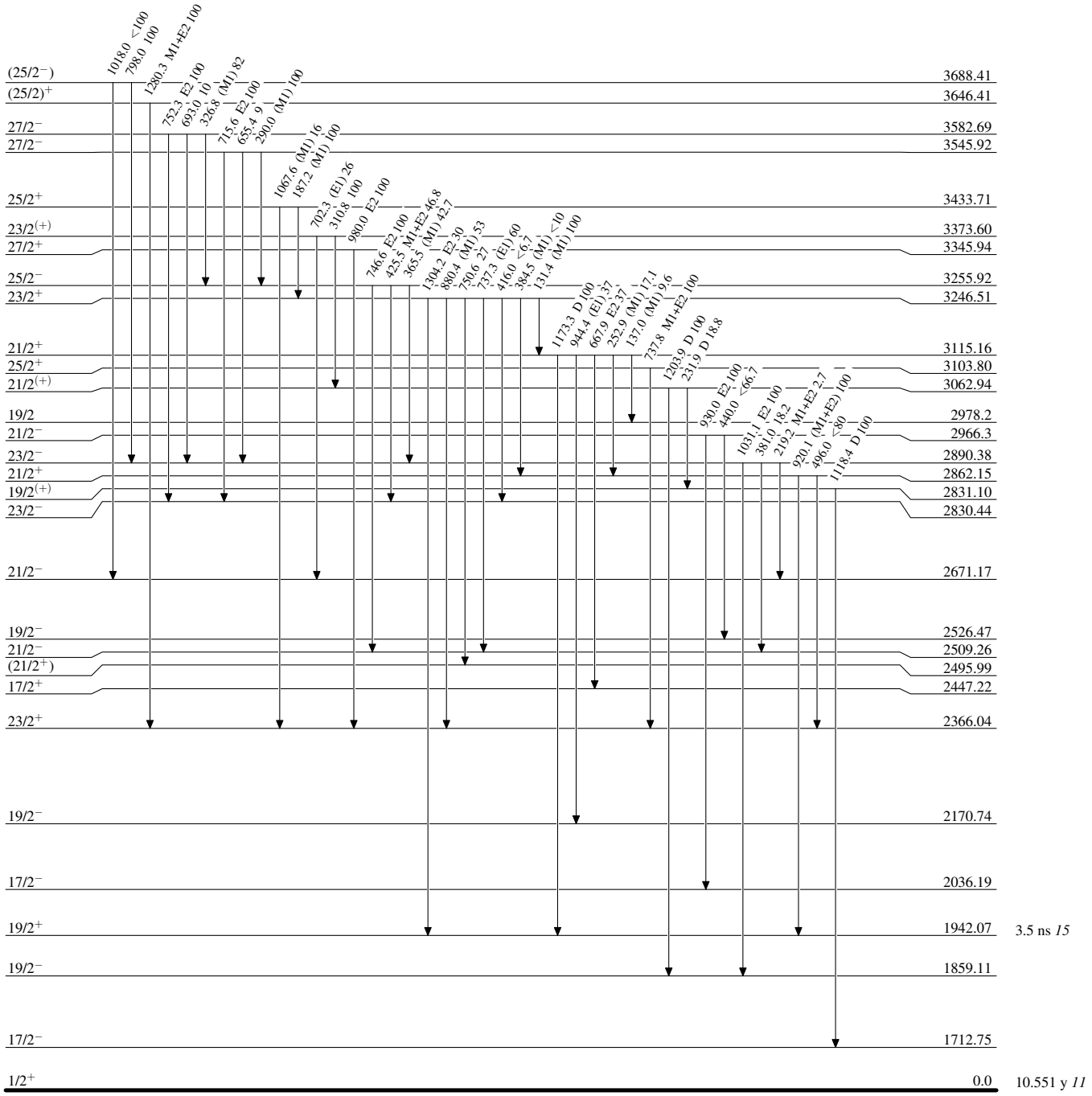


$^{133}_{56}Ba_{77}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{133}_{56}Ba_{77}$

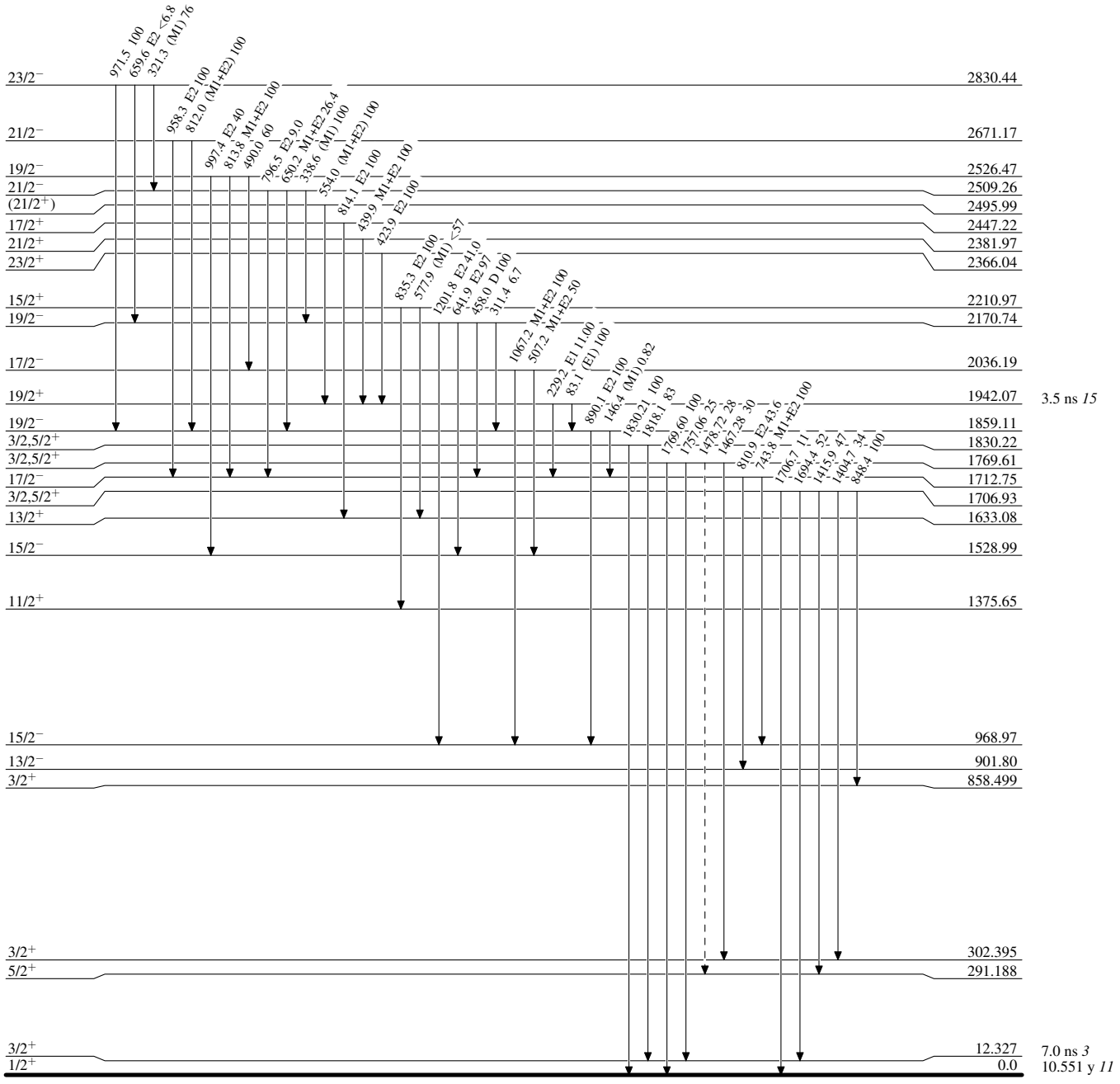
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)



$^{133}_{56}Ba_{77}$

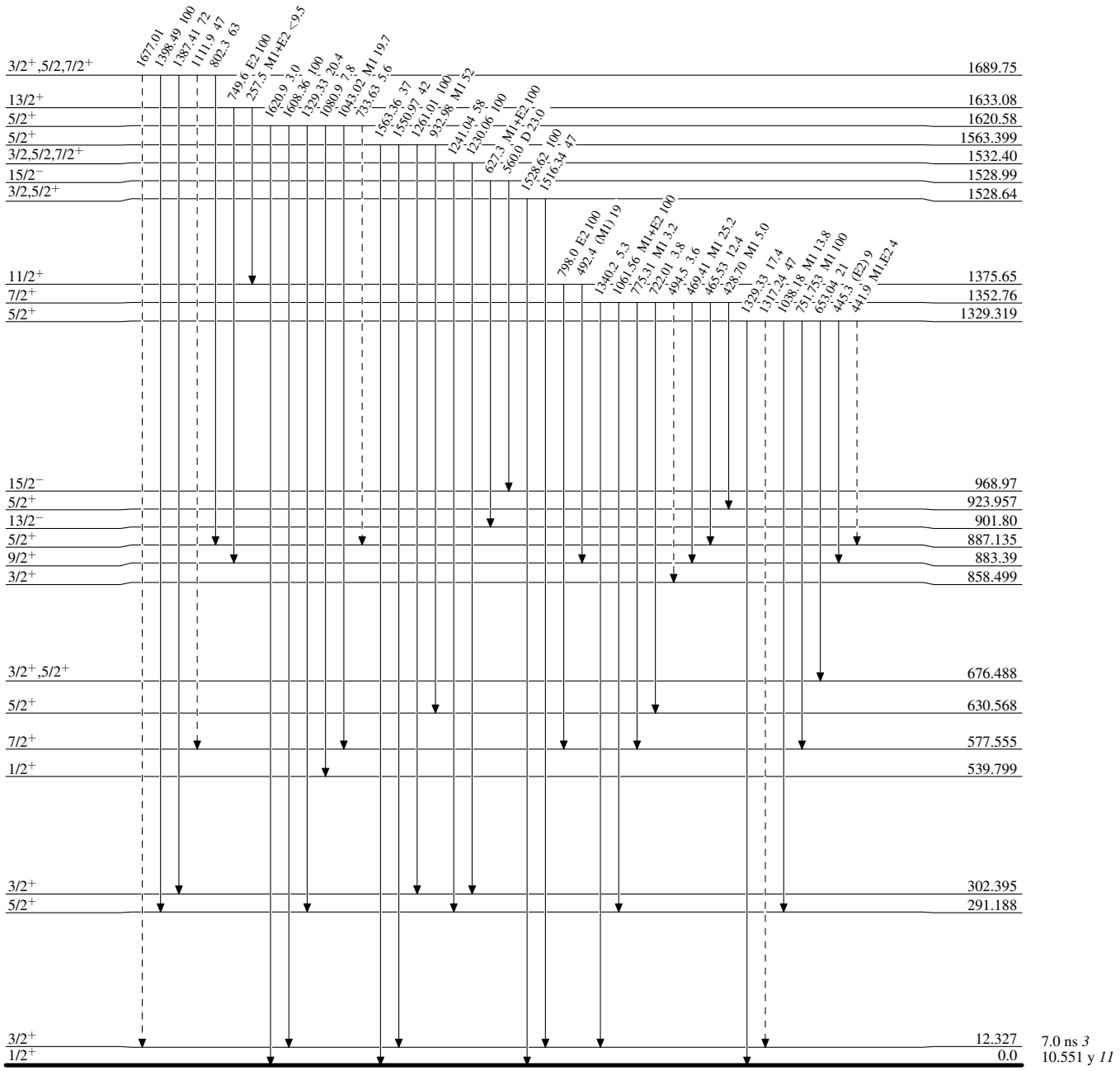
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)



$^{133}_{56}Ba_{77}$

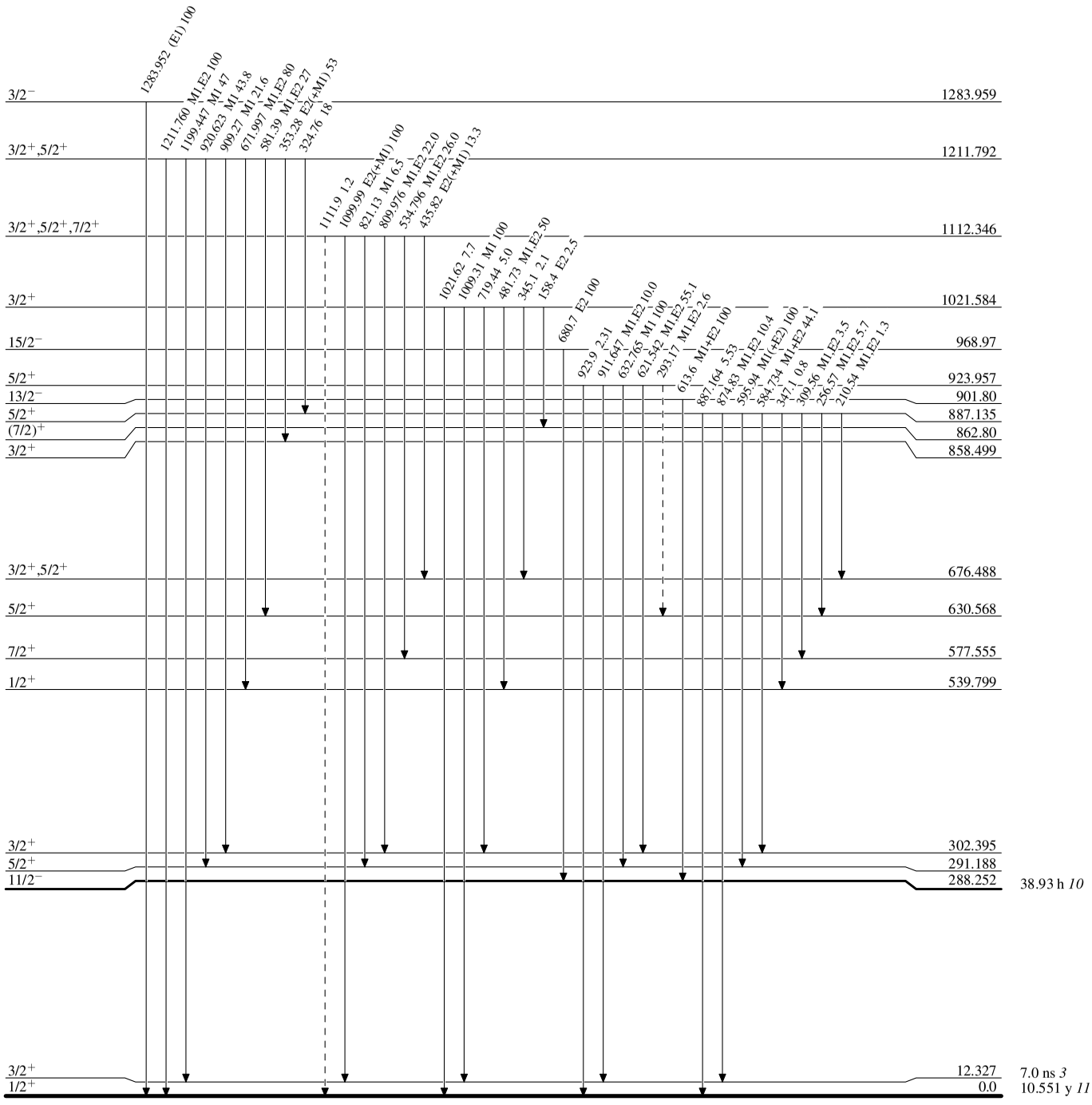
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)

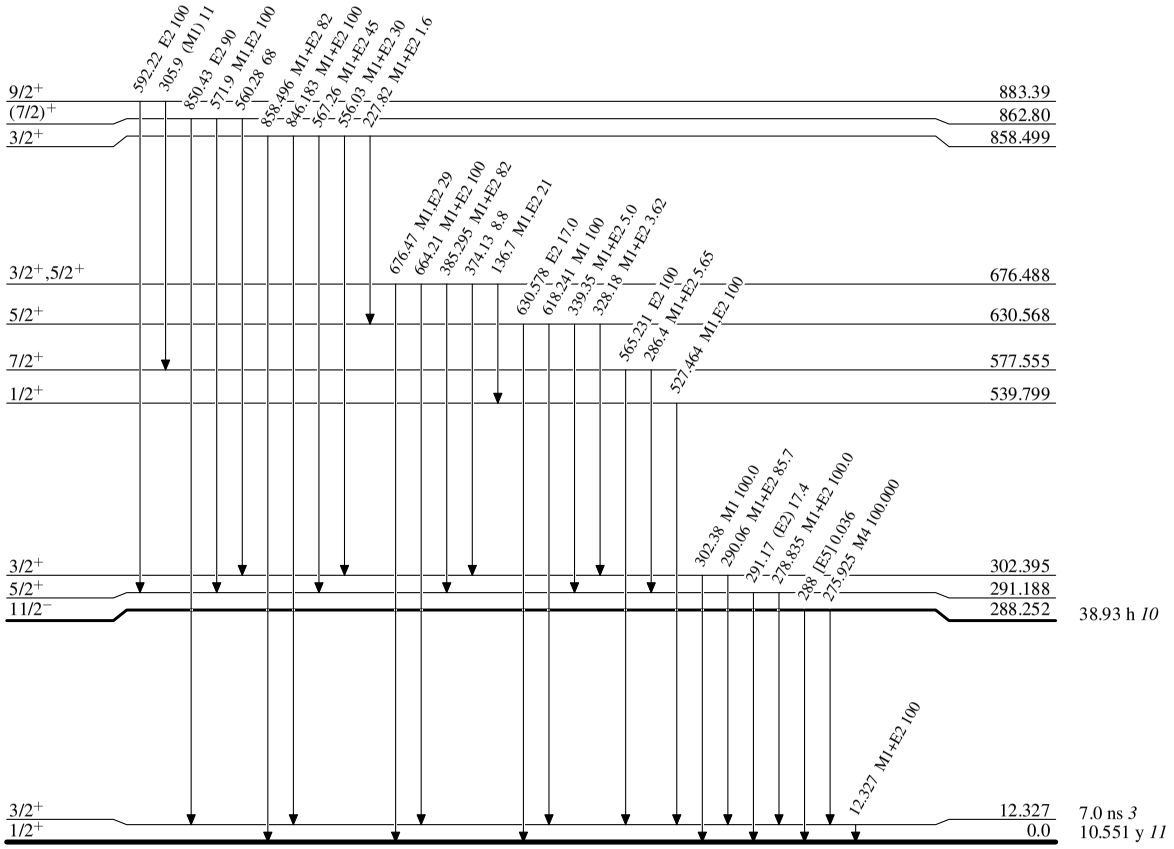


$^{133}_{56}Ba_{77}$

Adopted Levels, Gammas

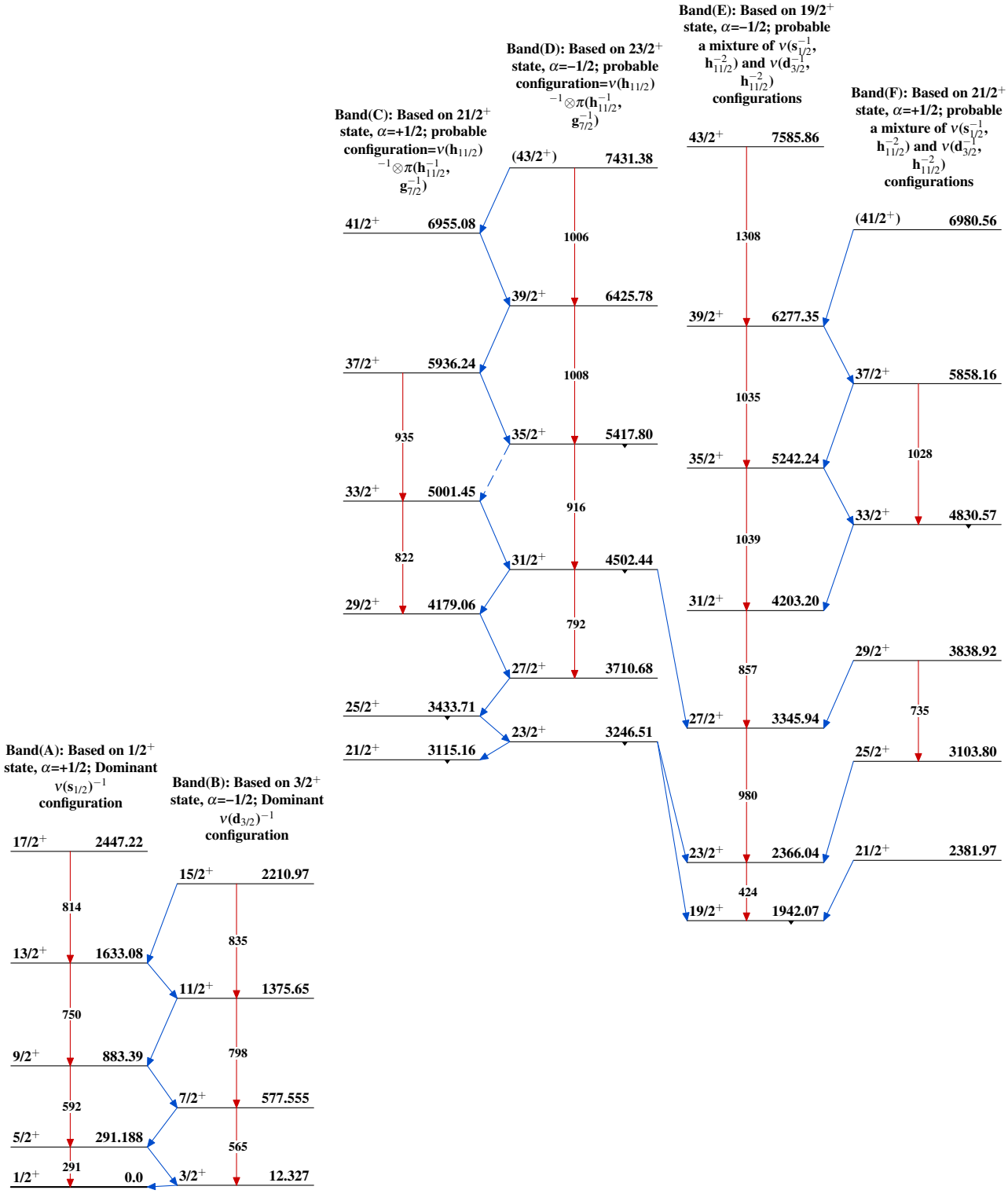
Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

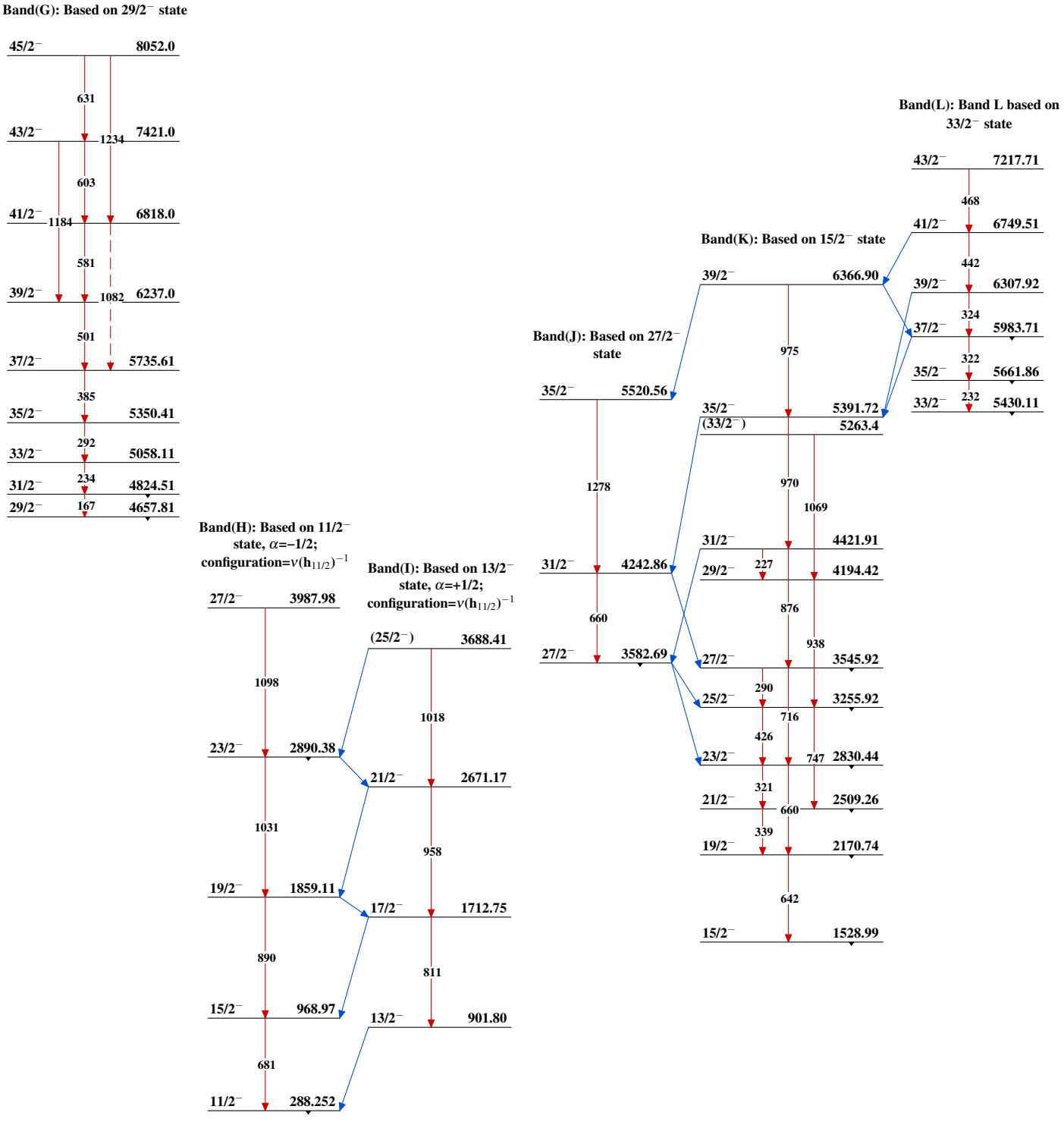


$^{133}_{56}Ba_{77}$

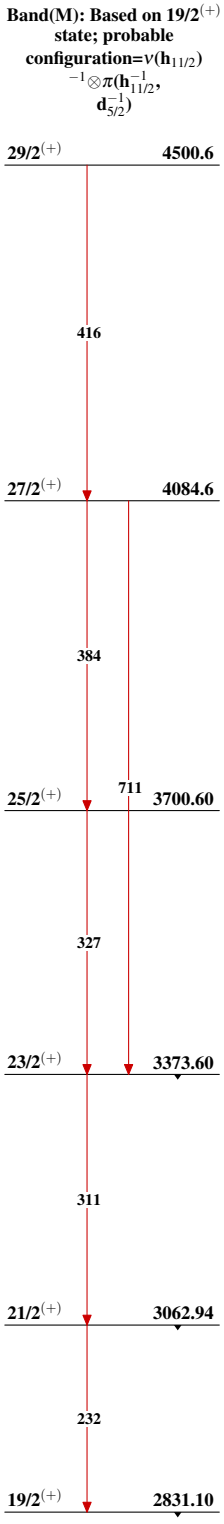
Adopted Levels, Gammas



Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)



$^{133}_{56}Ba_{77}$